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ABSTRACT

Five objectives are reported for a project to develop and test effective procedures for designing, field testing, reproducing, and disseminating individualized mediated instructional materials: (1) improvement of teacher input, (2) development of individualized instruction modules, (3) development of methodology for evaluating the effectiveness of teacher prepared materials, (4) development of a material reproduction and dissemination system, and (5) collection and analysis of data related to cost. Methods and procedures, results, and conclusions and recommendations are discussed. Project results (materials) are included in appendixes comprising the major portion of the report. An instructor's guide to the development of individualized instruction modules presents background information on this approach and learning styles and discusses identifying student competencies, developing student objectives, format and content organization, learning activities, evaluation, media selection, and script writing. Sample curriculum advisory committee agenda, member list, and minutes and a handbook are listed. The sixty-five modules (covering business and office occupations, agribusiness, health occupations, welding, and student preparation for employment) produced by the project are listed. Other appendixes include sample contracts, module, time sheets, and brochure; procedures for determining module credit equivalent and payment: pretest to measure the instructor's individualized instruction curriculum development competencies: and a module evaluation framework with evaluation instruments. (YLB)

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Final Report

Project No. 498AH70379
Grant No. G007702062

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TO DEVELOP AND TEST IMPROVED PROCEDURES FOR THE DEVELOPMENT AND DISTRIBUTION OF QUALITY INDIVIDUALIZED MEDIATED INSTRUCTIONAL MATERIALS IN VOCATIONAL EDUCATION

CE023669

June 1979

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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Office of Education

Bureau of Occupational and Adult Education

ABSTRACT

PROJECT NUMBER : 498AH70379 **GRANT NUMBER** : G007702062

PROJECT TITLE : A Proposal to Develop and Test Improved Procedures for the Development and Distribution of Quality Individualized Mediated Instructional Materials in Vocational Education

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DESCRIPTION OF PROJECT:

The purpose of this project was to revise and/or develop effective procedures for developing, field testing, reproducing, and disseminating individualized mediated instructional materials. Procedures for improving teacher input in individualized curriculum development were established. A total of 65 individualized instruction modules were revised or developed in four occupational areas. A framework and forms for evaluating and field testing the effectiveness of teacher-prepared individualized instructional materials was produced. A curriculum manual was developed which outlined procedures to be followed in the development of mediated individualized instructional materials. Competencies needed by instructors in order to develop mediated individualized instruction modules are also given.

A handbook for establishing curriculum review advisory committee was compiled.

The Media Center system of reproducing and disseminating instructional materials was revised and data collected as to the costs associated with these activities.

The curriculum manual and the invidualized modules will be made available to other institutions through the State Fair Community College Media Center distribution system.

Final Report

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THE DEVELOPMENT AND TESTING OF IMPROVED PROCEDURES FOR THE DEVELOPMENT AND DISTRIBUTION OF QUALITY INDIVIDUALIZED MEDIATED INSTRUCTIONAL MATERIALS IN VOCATIONAL EDUCATION

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June 1979

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Introduction

Vocational education is faced with many challenges in the future, one of which is serving an increasingly diverse clientele. Not only must vocational educational institutions be concerned with the traditional secondary student, but they must also serve an increasing number of secondary graduates seeking additional vocational training, disadvantaged and handicapped students with special learning needs, and adult learners with needs for skill improvement or retraining for a new vocation.

Related issues include the high unemployment rate and lack of vocational training in large cities or urban America. Ione Phillips, editor of the Journal of the American Vocational Association, reported in the May issue that although the inner cities have 22.8 percent of the nation's population, they have only 13.3 percent of all secondary and 10.6 percent of all post-secondary vocational education training stations.

The right of handicapped students to vocational education within the mainstream of public education was clearly established in 1975 by federal legislation. The needs of students with physical, mental, or emotional handicaps must be identified and met.

The Full Employment and Balanced Growth Act of 1978 (Humphrey-Hawkins Act) "established as a national goal the fulfillment of the right to full opportunities for useful paid employment at fair rates of compensation of all individuals able, willing, and seeking work..." The recent high unemployment rates, particularly of young people, and the success of CETA programs with linkage to vocational education points out this important area of training.

The rapid expansion of technology and the increased complexity of equipment in American industry involves vocational education in the upgrading of employee skills as well as training for new and emerging vocations. It has been estimated that new knowledge has been developing at a rate of about ten percent per year. Vocational programs must be updated to incorporate this new knowledge and skills, and programs established for new career fields.

Related to this need for technological skill improvement is the need of older citizens for vocational training, for continuing their present career, or in preparing for a second career. By the year 2030, nearly one in five Americans will be over 65.

This diverse population and the rapid changes in American technology has created special problems for the traditional classroom where all students were taught in a similar manner. Students entering vocational programs today have a very diverse background of previous experiences, level of skills, and learning ability. The individual goals of students also vary from a need for short term skill training to concentrated preparation for technical level employment.

The move to competency or performance based education, with its implied characteristic of individualized and personalized instruction, can help vocational education programs meet these individual needs of the students, and the needs of business and industry. In addition, since the emphasis of competency-based education is on exit requirements, open entrance-open exit programs can more easily be set up to match the training needs of the students.

When instruction is individualized, courses can be set up to accommodate students entering with different backgrounds and levels of ability. Instructors can more readily plan instruction for students with special needs. Time becomes a variable allowing students to master a required skill before proceeding on to the next lesson or module.

Competencies essential for employment can be identified and curriculum designed to help the student meet these competencies As technology changes, the competencies and their related instruction can be revised and updated.

With such a system, several problems immediately become apparent. Instructors in a competency-based individualized instruction program must rely on a variety of media materials to help present basic information while they develop and assist the students with individual learning activities. These materials are often not available, especially in those vocational areas where rapid technological changes are taking place.

During the past seven years, State Fair Community College staff members have sponsored inservice workshops for vocational instructors designed to assist them with implementing individualized instructional systems in their own institutions.

These educators as well as other teachers and administrators have cited the following problems as reasons why individualized instruction has not been implemented in their institutions or programs:

1. A lack of funds to:
   (a) purchase audiovisual equipment necessary to produce individualized instruction materials, and
   (b) hire curricula writers and media specialists.
2. A lack of time and knowledge in the production of individualized instruction media.
3. Individualized instructional materials were not accessible--either had not been produced or were not applicable to the needs.
4. A lack of a statewide or regional vehicle to reproduce and distribute those locally produced materials.

One of the key elements in the development of quality instructional materials in vocational education is the competencies of the curriculum developer. They must possess a variety of competencies in the field and follow sound procedures during the curriculum development process. They need to have background theory and technology of curriculum design; program development and instructional materials preparation. They must possess sound judgment based on the psychology on human learning and have an ability to articulate a philosophy or philosophies of education based on current research evidence. In addition, the task of designing and developing vocational curricula demands an up-to-date knowledge of available vocational curriculum materials and an ability to utilize and produce a variety of mediated materials.

In the past it was very likely that persons responsible for curriculum development in vocational education had little formal training in curriculum design, development, implementation, field testing, and revision. These duties were often assigned to department chairpersons or instructors who were not carrying a full teaching load. These individuals may have been introduced to curriculum development during teacher-training courses, but developed only limited competence in this area (Hill, 1976). Curriculum development and revision was not a continuous process but usually occurred only when it became evident that there was something seriously wrong with the materials currently used.

The following additional problems have been identified which substantiate the need for an ongoing curriculum development program, for the inservice training of instructors and advisory committee members involved in curriculum development, and for a dissemination network for instructor produced individualized instruction materials that have been proven effective.

1. Modern technology changes at a very fast rate and curricular materials in vocational programs must reflect this change. Curriculum developers must know how to recognize and make these needed changes in instructional materials.

2. Many junior or community colleges employ individuals from business and industry for part time teaching in vocational areas. These individuals possess the technical knowledge required for curriculum development or revision, but they lack competence in the curriculum development process.

3. Many new instructors or those presently employed who are competent in traditional curriculum development cannot revise or develop competency-based materials based on the needs of business and industry.

4. Curricular materials developed in the past have only limited applicability. They must be applicable not only to the secondary or post-secondary student, but also for individuals making career changes, and for students with special needs.

The purpose of this project was to revise and/or develop effective procedures for developing, field testing, reproducing, and disseminating individualized mediated instructional materials. Goals for this project included: (1) to develop and test procedures for improving teacher input in individualized curriculum development; (2) to develop and/or revise a maximum of 45 modules for individualized instruction; (3) to develop and test methodology for evaluating the effectiveness of teacher prepared individualized instruction materials; (4) to develop a system for the reproduction and dissemination of mediated instructional materials; and (5) to collect and analyze data related to the cost of developing, reproducing, and disseminating these materials.

Methods and Procedures

Objective 1: To develop and test procedures for improving teacher and advisory committee inputs and competencies in the development and mediation of individualized instructional materials in five vocational curricula areas.

In order to determine curriculum development procedures followed by other educational institutions, the project coordinator and staff attended various workshops and conferences and visited other institutions involved in the development of mediated individualized instructional materials. Conferences and workshops attended included the Fourth Annual Seminar of the Council for Occupational Education held at Hastings, Nebraska; the 1978 National Convention of the Association for Educational Communications and Technology at Kansas City, Missouri; the Ninth and Tenth Annual Conferences of the International Congress for Individualized Instruction at West Lafayette, Indiana, and Waco, Texas, and a Regional Conference on Mass Media Instruction held at St. Louis, Missouri.

Institutions visited include the Instructional Materials Laboratory at the University of Missouri, the Vocational Agriculture Service at the University of Illinois at Urbana, Illinois, the Individualized Nursing and Botany/Zoology programs at Purdue University, the Instructional Materials Development Centers at Kansas City Technical Center, St. Louis Community College at Forest Park, Indian Hills Community College in Ottumwa, Iowa, Central Technical Community College in Hastings, Nebraska, South Oklahoma City Junior College, North Lake Community College in Dallas, Texas, and the Individualized Meats Processing program at Texas Technical Institute in Waco, Texas.

Information was collected on such things as the way instructors were selected for curriculum development activities, the organization and structure of instructional development and individualized instruction programs, staff responsibilities and duties, and procedures followed in the development of mediated individualized instructional materials. This information was used to modify and improve curriculum development procedures at State Fair Community College.

A committee of faculty and administrators was selected to develop a manual for vocational instructors to utilize in producing individualized instructional modules. A collection of reference materials on instructional design, competency based education, and individualized instruction was assembled for use in the development of the manual. Dr. F. M. Miller from the University of Missouri was selected as consultant for this manual.

During the initial meeting of the committee and consultant on January 11, 1978, the following sections and assignments were outlined.

Section	I	Competency-Based Individualized Instruction for Your Program	Marvin Fielding
	II	Overview of the Individualizing Process	Judy Kuhlman
	III	Learning and the Learner	Florence McGuire
	IV	Identifying Student Competencies	Nila Hibdon Robert Schwindt
	V	Developing Student Objectives	Ken Schondelmaier
	VI	Format and Content Organization	Robert Schwindt
	VII	Learning Activities	Robert Schwindt
	VIII	Evaluation	Shirley Evans
	IX	Media Selection	Charles Cogar
	X	Script Writing	Charles Cogar

The committee and consultants again met on March 7 to review the first draft. During this review the purpose of this manual was further specified as assisting the instructor who is developing individualized instructional materials, rather than an implementation manual. Recommendations for additions, modifications, and deletions were made for each section of the manual.

On April 4 the consultant met individually with each committee member for a second review of the manual. Copies of each section were provided to committee members. Following additional revisions, the manual was reviewed by the committee on May 4, proofread by an English instructor, and copies were duplicated.

The manual was utilized by Dr. Jerry Routh of Southwest Missouri State University in an in-service teacher education class on the development of mediated instructional materials as well as by vocational instructors developing modules at State Fair Community College.

Final revisions and corrections were made on the manual. A copy of this manual is included as Appendix A.

A list of competencies needed by instructors to develop instructional modules was compiled by the project staff. This list of competencies is included in the section of this report describing project results. These competencies were reviewed at a mid-semester, January 12, 1979, workshop by State Fair Community College instructors who have developed individualized mediated instructional modules in the curricula areas of welding, health occupations, and business and office occupations. This competency list was also reviewed by curriculum specialists from three other Missouri institutions who served as consultants for various phases of this project. A pre/post test was developed to measure those competencies.

The project coordinator served on a State Fair Community College institution wide committee which developed a manual on the use of advisory committees in vocational and other instructional programs. This manual was then reviewed by the project staff.

A revised form of this manual was developed by the project staff. This manual was specifically designed for Media Center curriculum advisory committees. These committees identify curricula needs and review curricula materials developed for individualized programs.

Curriculum advisory committees were utilized in this project to review instructional modules developed in the areas of business and office occupations

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and welding. The business and office committee met on February 23 and 24 in 1978, and November 27 and 28, 1978. This committee was composed of instructors in business and office teacher training at each of the state universities as well as business and office instructors from Missouri community colleges and area vocational schools. This committee reviewed modules developed under this project and suggested future modules.

The welding advisory committee met on November 15, 1977, and January 29, 1979. This committee was composed of welding industry representatives in the Kansas City area as well as welding instructors from selected Missouri area vocational schools and community colleges. This committee also reviewed modules developed prior to the meeting as well as suggested modules for future development.

New modules in health occupations were reviewed by the state program officer for health occupations as well as the State Fair Community College health occupations department chairperson and staff.

A committee of counselors and placement personnel from the Missouri Statewide Placement Project and State Fair Community College and Area Vocational School identified and reviewed competencies for a series of modules on preparing for employment. This committee next organized these competencies into nine modules, served as writer for selected modules, and reviewed the completed modules.

> Objective 2: To develop and/or revise and mediate 45 modules of individualized units of instruction in the vocational curricula areas of Agriculture, Business and Office Occupations, Health Occupations, Welding, and Pre-employment Training.

Modules developed during this project were field tested in classes at State Fair Community College in the semester following their development. They were also reviewed by advisory committees and then revised according to recommendations from field testing and the advisory committee.

A schedule was developed for module revisions. The following procedures were used. Modules in welding and health occupations were revised by instructors on an overload contract basis. Modules in business and office were revised by instructors given release time from instructional duties, or during the summer months by instructors with no summer teaching contracts.

Normally the modules were revised by the instructors who developed the original module. When possible, the media specialist who originally produced the module also revised the media presentations.

Following the completion of the revisions, the modules were duplicated for distribution to other schools through the Media Center. Revisions were also made to the classroom field test copies.

State program officers, department staff, and curriculum advisory committees developed a list of modules for future development in each program area. After a priority sequence was developed, the project coordinator met with the department chairperson.

State Fair Community College instructors were suggested as module developers by each department chairperson based on their expertise in the module subject matter, and their interest in curriculum development. Instructors were compensated for module development by one of two procedures. They were given release time from classroom instructional duties, or an overload contract was established with the instructor. When there were no State Fair Community College instructors available for module development, the State Department of Education program officer in that occupational area was contacted. Instructors from other institutions, as recommended by the state program officer, were contacted by the project coordinator and a curriculum development contract established. Contract amounts were based on the State Fair Community College part-time instructor's salary schedule.

The project coordinator would first meet with the curriculum developer to explain the components and format for the individualized module. The instructor was also given copies of other modules for their reference. The instructor next completed the first draft of the module and turned it in for typing by the Media Center secretary. This first typed copy was reviewed by the project coordinator and his comments were forwarded to the instructor and media coordinator. The script was next reviewed by the media coordinator and assigned for production by a media specialist.

The media specialist developed graphics and illustrations, recorded the audio, and completed program photography or filming/videotaping as called for in the script.

The revised draft of the modules was returned by the instructor and media specialist to the Media Center secretary for final typing. Following final typing, the module was proofread by a State Fair Community College English instructor and by the writer. Final corrections were made on the master copy. The module was finally duplicated for advisory committee review and field testing.

> Objective 3: To develop and test methodology for evaluating the effectiveness of teacher prepared individualized instructional materials in one curricula area listed in Objective 2 in one location other than State Fair Community College and Area Vocational Technical School.

Evaluation procedures used in the individualized business and office program at State Fair Community College were reviewed. The project coordinator and State Fair Community College business and office chairperson visited with administrators and business and office instructors of Three Rivers Community College, and Joe Herndon, Rolla, Mexico, Waynesville, Sikeston, and New Madrid Area Vocational Schools to discuss the operation of their individualized instruction programs. Included in this discussion was the effectiveness of the business and office mediated individualized instruction modules.

The project coordinator also visited instructional development departments at South Oklahoma City Junior College in Oklahoma City, Oklahoma, Indian Hills Community College in Ottumwa, Iowa, North Lake College, Irving, Texas, Texas Technical Institute in Waco, Texas, and the Kansas City Technical Education Center in Kansas City, Missouri. Procedures for maintaining the quality of modules during their development and of measuring their effectiveness during their testing and use were discussed.

Three consultants with a background in instructional development and evaluation were selected to assist in the selection or development of evaluation procedures and instruments to be used in measuring the effectiveness of individualized mediated instructional modules. Consultants included:

> Dr. John Andrews, Director of Instruction for Vocational/Technical Education of the Special School District of St. Louis,
>
> Dr. F. M. Miller, Associate Professor in the Department of Practical Arts and Vocational-Technical Education of the University of Missouri at Columbia, and
>
> Dr. Jerry Routh, Professor in Industrial Education from Southwest Missouri State University, Springfield, Missouri.

The consultants met with the project staff on August 2 and 3. A first draft of four evaluation instruments were developed. These included:

1. Advisory Committee Evaluation Instrument,
2. Curriculum Developers Self-Evaluation Instrument,
3. Instructor Field Test Evaluation Instrument, and
4. Student Evaluation Instrument.

During a review of the instruments, the Curriculum Developers Self-Evaluation Instrument and Instructor Field Test Evaluation Instrument were found to be very similar and so were combined into one instrument. The three revised instruments were retyped and mailed to the consultants for further review.

A framework or sequence of events to be followed during the evaluation of an individualized mediated instructional module was developed. An instrument for use by media specialists in evaluating the mediated portion of the module was also developed by the project staff as recommended by the consultants.

The consultants met with the project staff on January 10 for a final review of the evaluation framework and instruments. Response statements on the Instructor Evaluation Instrument and on the Students Evaluation Instrument were grouped into parallel subsections to allow for a comparison of student and instructor responses for each aspect of the module. A cover page for each instrument was developed to gather information about the student's and instructor's backgrounds, and the classroom setting in which the module is used.

The revised Consultants Evaluation of a Learning Module Instrument was used by members of the November 27 and 28, 1978, business and office advisory committee and the January 29, 1979, welding advisory committee. Data gathered through the use of this instrument was used to make revisions in the modules.

The Media Specialists Evaluation of a Learning Module Instrument was used by the project media specialist to evaluate module slide programs as they were completed.

The project coordinator met with members of the Indian Hills Community College business and office staff in October, 1978, to discuss the field testing of individualized modules in business and office occupations. The Student and Instructor Evaluation Instruments were explained to the staff and copies provided for their use.

Objective 4: To develop a system to reproduce and distribute mediated individualized vocational instructional materials to community colleges, Area Vocational Technical Schools, and comprehensive high schools within the Department of Health, Education, and Welfare Region VII (Kansas, Missouri, Iowa, and Nebraska).

The project coordinator visited with personnel in the Instructional Materials Centers of several community colleges and universities. Included in the discussions were the types of instructional media being utilized in individualized instruction programs, and the procedures for duplicating and distributing these materials.

Media Center staff meetings were scheduled periodically to review progress on the development of the mediated portion of the modules. Included in each staff meeting was a discussion of problems encountered and ways to improve the efficiency of the material development and duplication process.

A contract was established with an instructor from the electronics department for the installation, routine maintenance, and repair of Media Center equipment. This instructor was employed full-time during the summer session for major equipment maintenance and installation, and part-time during the fall and spring semesters for routine maintenance and repair.

Test slides were shot at the beginning of each long roll of film during the duplication of slide programs and the original photography of artwork. These test slides were then checked with master slides provided by the film development laboratory. Slide duplicates were also periodically checked for quality by the Learning Research Center Director and Media Specialist. Lab technicians at the film development lab were contacted by telephone when problems in slide quality were noted.

The output of slides was increased through the installation of an automatic slide mounting machine. An additional unit was added to the cassette tape duplicator to increase its capacity to 15 duplicates per run. Procedures were developed for connecting a series of four videotape recorders for the duplication of 3/4 inch videocassettes.

A storage area was established for an inventory of Media Center materials. Modules were organized according to their order in the Media Center manuals. The quantity of materials duplicated for inventory was based on the past sales of the modules. One secretary was assigned the responsibility of filling orders.

Brochures were developed for each curricula area in which mediated individualized instructional materials were available. This brochure gave a brief description of module content, materials included, and cost.

The State Fair Community College Vice-President for Instruction and this project coordinator contacted personnel in the vocational or career education divisions of the Missouri, Nebraska, and Iowa State Departments of Education. Sample modules were shown, the project explained, and lists of instructors in the curricular areas requested with permission for the mailing of brochures to these instructors.

Graphic materials were ordered for the construction of a portable display unit. This display was designed by the project coordinator and State Fair Community College Learning Resource Center Director. The project coordinator and/or State Fair Community College vocational instructors set up this booth at State Vocational Association meetings in Missouri, Iowa, and Kansas in the spring, summer, and fall of 1978. State Fair Community College welding and business and office instructors presented programs on new modules available and their use in an individualized program at the Missouri Vocational Association Summer Conference.

Objective 5: To collect and analyze data that would indicate the cost of developing, reproducing, distributing mediated individualized instructional materials to a four state region through a centralized Media Production Center.

The different types of costs involved in the development of individualized mediated instructional materials were identified and categorized. The costs for the reproduction and dissemination of these materials were also identified and collected.

RESULTS

Objective 1: To develop and test procedures for improving teacher and advisory committee inputs and competencies in the development and mediation of individualized instructional materials in five vocational curricula areas.

State Fair Community College experience has found that instructors must spend considerable time in revising course materials and developing new instructional modules.

Curriculum content and course schedules must be revised, content and learning activities arranged into an individualized format, and media presentations developed. When these duties were assigned on top of a full teaching schedule, the instructor could not or would not develop satisfactory instructional materials and problems developed within the individualized program. Since these materials were designed to be marketable, additional time and effort was required by the instructor in developing a professional product.

We have found that to produce a high quality individualized mediated instructional module requires individuals who:

1. are competent in their instructional area;
2. keep up-to-date with technological changes in their instructional area;
3. understand the psychology of human learning;
4. understand curriculum design, program development and instructional materials preparation;
5. are experienced in and understand the theories of classroom teaching;
6. are aware of instructional advantages and characteristics of the types of media;
7. receive assistance from media producers; and
8. ARE REWARDED FOR THEIR INNOVATIVE ACTIVITIES.

Individuals selected for curriculum development activities must have certain experiences and abilities. First, they must have teaching experience.

This is important so that the materials they develop are at a level appropriate for the intended students. When an instructor has taught a course, they will have a much better idea of what instructional materials are needed and design these so that they become an integral part of the course and instructional program. The experienced teacher has a background for designing and selecting those learning activities that are most appropriate for the student to master the desired competencies. They are also familiar with students abilities and so can specify the level of competency and design evaluation procedures that are realistic with the students abilities.

The development of individualized instruction modules will be easier for the instructor who has had previous experience in curriculum development. Participating in competency studies and assisting in the development of course syllabi and lesson plans are valuable experiences.

Work experience in the business or industry for which students are trained will be a valuable experience. This will provide the curriculum developer firsthand knowledge of competencies needed by their students. Good rapport with businesses and industries is also essential. This will allow the curriculum developer to call upon these individuals for assistance such as the review of materials, or permission for on-site photography for media presentations.

The instructors experience in written communications should also be considered. The curriculum developer needs to be able to logically organize their thoughts and materials so they can be followed and understood by students. They also need to be able to write grammatically correct although this is not as essential as including final proofreading by a writer instructor.

Although those experiences just mentioned are important for the instructor developing individualized instruction materials, the additional competencies described next are also essential.

Instructional Development Competencies Desired

1. The curriculum developer must possess a philosophy that individualized instruction is a valuable alternative to traditional instruction. Specifically, the writer should be able to:

   a. Explain the advantages of individualized instruction to the institution, the instructors, and the students.
   b. Describe the characteristics of competency-based instruction.
   c. Compare the role of the instructor and the student in a traditional system and an individualized instruction system.

2. The curriculum developer must understand that students learn as individuals and so instruction must be designed for individual differences. Specifically, the writer should be able to:

   a. Identify the factors affecting the way students learn.
   b. Identify specific student characteristics that will affect their learning.
   c. Discuss learning styles.

3. The curriculum developer must be able to perform task and instructional analysis in order to determine what competencies should be taught. Specifically, the writer should be able to:

   a. Locate sources of information for building tasks or competency lists.
   b. Develop a listing of tasks or competencies the student needs for entry into an occupation.
   c. Arrange tasks or competencies in prerequisite order.
   d. Analyze tasks or competencies into their skill, knowledge, or attitude components.
   e. Identify module topics.

4. The curriculum developer must be able to develop appropriate student objectives from the competency and task list. Specifically, the writer must be able to:

   a. Explain the advantages of using instructional objectives.
   b. Write objectives that contain all three objective components.
   c. Write objectives that match the task analysis and specify the learning desired.
   d. Write objectives that are appropriate for learning in all three domains.
   e. Write objectives at the terminal and enabling objective level.
   f. Write objectives that are measurable.
   g. Organize module objectives in prerequisite order.

5. The curriculum developer must be able to organize instructional materials in to the modular format desired which contains all of the necessary components. Specifically, the writer must be able to:

   a. Identify the various components of an instructional student module.
   b. Organize and write content information in the most appropriate order.
   c. Identify the components of the instructor's guide.
   d. Write a module introduction describing the module content and importance to the learner.
   e. Place module components in the format desired.

6. The curriculum developer must be able to design learning activities that will enable students to master lesson objectives. Specifically, the writer must be able to:

   a. Select learning activities appropriate for learning in all three domains.
   b. Write learning activities so that they are clearly understood by students.
   c. Arrange learning activities in prerequisite order.
   d. Provide the student practice, reinforcement, and feedback in learning activites.
   e. Provide a variety of learning activities to match varying student needs.
   f. Present materials in small steps or units that can be easily grasped by students.

7. The curriculum developer must be able to design evaluation instruments that measure student mastery of the lesson objectives. There must also be a strategy for evaluating the effectiveness of instructional modules. Specifically, the writer must be able to:

   a. Discuss the advantages of mastery learning.
   b. Explain the purposes of student evaluation instruments.
   c. Describe the steps for evaluating the quality and effectiveness of a module.
   d. Identify module weaknesses through the use of specified evaluation instruments for students, the writer, and content consultants.
   e. Design evaluation items that will measure learning in all three domains.
   f. Design evaluation instruments that are appropriate to the student learning abilities.
   g. Write evaluation items so they are clearly understood by the student.
   h. Match evaluation procedures to the learning specified in the objective.
   i. Develop multiple forms of the evaluation instruments.

8. The curriculum developer must be able to select the type(s) of media most appropriate for presenting the instructional message. Specifically, the writer must be able to:

   a. Describe the characteristics, advantages, and disadvantages of the eight types of media.

b. Explain the nine factors to consider in selecting a media type for an individualized module.
c. Utilize a selection system in identifying a media type for an individualized module.

9. The curriculum developer must be able to develop, with the assistance of a media specialist, a media script such as for a slide, film, or video presentation. Specifically, the writer should be able to:

   a. Organize script information in a logical, easy to understand order with smooth transitions and continuity.
   b. Write the script narrative at a level appropriate to the student vocabulary, background, and age.
   c. Utilize the specified format when writing a script.
   d. Specify the visuals necessary to convey the message.
   e. Describe action and center of interest for live shots suggesting camera angle and distance.
   f. Write the script for the media format desired.

These competencies were reviewed by instructors involved in module development at State Fair Community College. They need further verification by curriculum developers at other institutions.

A pre/post test was designed to measure these competencies and is included in the appendix. This pre/post test needs further verification because of the small number of instructors testing it at State Fair Community College.

We feel that on the junior/community college level the instructor is the individual who most nearly meets the previously listed criterion. They possess the instructional and content expertise. They have business and industry contacts for securing additional information and for on-site filming or photography. Many instructors have had classes or previous experience in curriculum design. They can receive assistance when needed in curriculum design and adapting instructional materials to the individualized format from the Media Center Director. Assistance is available in media selection and script writing from the media specialist. They are directly involved in the field testing of modules and can easily make revisions as well as see what does and does not work.

The general procedures for selecting curriculum writers at State Fair Community College is as follows. As you can see, since these materials are designed for widespread use, a number of individuals are involved in the identification of modules for development and in the selection of the curriculum writer.

General Procedures Followed for Selecting Curriculum Writers

1. Identify modules for development or revision

    a. State program officer
    b. Survey practitioners in instructional area
        mail
        conventions, workshops
    c. Advisory committees
    d. Department reviews
        students
        instructors
    e. Instructional analysis
        task analysis
        curriculum guides
        competency studies

2. Determine priorities

    a. Need in program
    b. Substitute materials already in use
    c. Marketability

3. Select writer

    a. Expertise in module topic
    b. Experience in curriculum development
    c. Available for development work

4. Determine payment method

    a. Release time
    b. Overload contract

5. Approval

    a. Dean
    b. Vice-President for Instruction

6. Set time table

    a. Rough
    b. Script
    c. Final copy
    d. Testing

Community and junior colleges with an institutional commitment to competency-based individualized vocational instructional programs have established a number of policies and procedures that encourage the production of curriculum materials. The following procedures for staff utilization are being used at different institutions.

1. Curriculum development as an integral part of instructional duties. Each instructor is expected to make minor revisions as they prepare for and teach a course. These may include modifying objectives, correcting errors in the packet, rewriting tests and assessment, and adding some additional reference materials or learning activities.

2. Partial release time from teaching duties. An instructor is released from a specified number of credit hours of instruction such as three or six so they can devote this time to curriculum development. The amount of credit hours allocated for each module depended on the complexity of the assignment. Major revisions of an already established module such as the updating of the audiovisual, information sheets, and learning activities would be given less credit than the development of a new module. A demonstration module showing the steps of a procedure in performing a skill would be equivalent to less credit than if the module also included background technical information. This release time was given either as a semester long reduced course load or as a short block of time release from all instructional duties.

3. Overload contract. Instructors who are teaching a full load and wish to develop curriculum materials are given an overload contract. This contract is written in credit hour equivalents which ties it to the institutional overload pay scale. Board policy generally limits an instructor to one overload per semester. Our institutional overload schedule pays 2.5 percent of a teachers ten month contract for each one credit hour equivalent. For example, the overload payment for an instructor whose ten month contract is for $10,000 would be figured by taking 2.5 percent of $10,000 ($250) times the credit hour equivalent. For a three hour overload this would amount to $750. A problem again is determining the appropriate credit hour equivalent for this assignment.

4. Part time contract. Instructors with only a part time teaching contract with the institution are used for curriculum development activities. State Fair Community College has also contracted with instructors from other education institutions for the development of modules in areas where a local instructor is not available. These individuals are paid according to the part time instructors schedule. Our institution's salary schedule, however, for part time instructors is lower because those instructors do not have the non-teaching assignments such as sponsoring organizations, helping with enrollment, etc. Part time instructors (instructors with less than 1/2 of a fulltime load) are paid on that scale for the development of modules. For example,

> a part time instructor on step three would be paid $225 per credit hour or $675 for developing a module equivalent to three credit hours.

A more complete outline of the comparable advantages, problems, and their solutions for these different procedures follows.

Method - Curriculum Development as Part of Regular Duties

Problems:

1. Demands of other instructional commitments
2. Limited curriculum development competencies possessed by some instructors
3. Determining assignments and equating assignments for all staff
4. Validating changes in curriculum

Advantages:

1. All instructors see curriculum development and improvement as a part of their duties
2. Continuous updating of course materials
3. Improvements made as they are found necessary during the actual teaching of the course

Solutions:

1. Regular on-going in-service curriculum development workshops for all staff
2. Institutional commitment and backing with this responsibility clearly defined
3. A clear description of what are regular curriculum development responsibilities, and what would be considered as requiring release time or overload payment

Method - Spread Out Release Time

Problems:

1. Interruptions by students, faculty, etc.
2. Distraction by other teaching duties--tests, lesson preparation
3. Short working periods
4. Inexperienced curriculum developers utilized because of unfilled schedule
5. Uneven work flow for media staff--piles up at end of semester
6. Instructor with best curriculum development skills may have full teaching load
7. Less control over quality of presentation by Media Center
8. Some development activities require all day, such as off-campus photography, which leads to cancellation of classes

Advantages:

1. Use of instructor in area of expertise
2. Time for completing associated activities such as correspondence, for information, typing and proofreading, media assistance, slide development
3. Opportunities for instructor who enjoys curriculum development but other responsibilities prevent overload work

Solutions:

1. Class arrangements to have large block of time such as mornings, afternoons
2. Curriculum development workroom in Learning Resource Center
3. Selection of instructors with interest in curriculum development
4. In-service education
5. Well defined development timetable
6. Have a certain portion of their contract designated for curriculum development with clause of no payment until completed
7. Assistance by an experienced curriculum developer
8. Working with department chairperson and dean in class scheduling and teaching assignments

Method - Block Release Time

Problems:

1. Student objection and class disruption when changing instructors
2. Production delays
   a. typing, proofreading, etc.
   b. media - film development, recording, etc.
3. Inexperienced curriculum developers
4. Scheduling of instructors to cover for instructor developing curriculum

Advantages:

1. Concentrated effort on curriculum development by writer
2. Use of instructor in area of expertise
3. Improved scheduling of work through Media Center
4. Direct control by Media Center Director

Solutions:

1. An individualized instruction program where students are not so tied to one instructor
2. Specified secretaries for immediate typing, proofreading, etc., of materials
3. Media Center scheduling of staff to match writer's schedule
4. Two blocks spaced several weeks apart. For example, two weeks for development; three weeks regular duty; one week completing module

Method - Overload Contract for Full Time Instructors

Problems:

1. Curriculum writer finding time for development activities
2. Curriculum writers priorities start with regular job
3. Staff available for development on an overload basis; may have other commitments or overload teaching
4. Curriculum development activities considered harder than teaching for equivalent pay
5. Difficult to determine in advance amount of time required for developing a module

Advantages:

1. Summer employment for instructors
2. More direct control over development by adding deadlines and withholding payment
3. Extra income for instructor
4. Opportunities for curriculum development by interested individuals

Solutions:

1. Penalties for failure to meet deadlines
2. Worksheet formula for determining credit hour equivalent
3. Special incentives such as:
   a. travel to workshops, conventions
   b. special recognition - faculty meetings, news articles, name on presentation
   c. assistance by experienced curriculum developers
4. Working with department chairperson and dean in scheduling overload assignments
5. Part time instructors for overload teaching assignments which frees instructor to write
6. Media Center scheduling so specialist available at times specified in writer's contract
7. Reminder by department chairperson, media specialist assigned to presentation, and Media Center Director of materials needed, deadlines, etc.

Method - Contract Payment for Part Time Instructors and Instructors from Other Institutions

Problems:

1. Identifying instructors with curriculum development abilities
2. Curriculum writers completing assignments on time
3. Curriculum writer understanding processes involved and format used
4. Coordination between writer, typist, media specialist, and illustrator
5. Determining credit hour equivalent for module
6. Contents matching module objectives and its relationship to other modules in series

Advantages:

1. Part time instructor or off-campus instructor have expertise in specific module
2. Part time instructor has time available
3. Involvement of other institutions increases use and acceptance of materials
4. State Department favors involvement of other institutions for materials developed for statewide use
5. Reduced demands on institutional department staff
6. Materials not specific to local institutional program

Solutions:

1. Ask state program officers, other university department chairpersons for individuals who have exhibited interest and skills in curriculum development
2. Establish schedule of when each development activity is due, such as student manual, script, and set periodic meeting times
3. Curriculum development workshops for part time writers
4. Curriculum development manual for part time writers
5. Keep record of time spent, and pay according to actual hours of work
6. Local instructor serves as content resource person
7. Part time curriculum developers attend advisory committee and planning meetings
8. Writers submit preliminary outline for review by content consultants and media staff

One problem encountered, as previously mentioned, was equating the amount of time devoted to curriculum development activities to a credit hour figure.

The specific amount of time an instructor was to spend on curriculum development was determined as follows at State Fair Community College.

a. An instructor teaching a one hour course will spend 16 hours in the classroom. They will also spend approximately one hour in preparation for each hour in the classroom for a total semester commitment of 32 hours for a one credit hour course; 64 hours for a two credit hour course; or 96 hours for a three credit hour course. These would be the comparable time commitments for equivalent curriculum development activities.

b. The formula used in the business and office department is as follows. Instructors work approximately 7 hours/day, 5 days per week, 35 hours a week. Full time teaching load is 14 to 16 credit hours, or 21 contract hours. This leaves 14 hours per week for preparation, paper recording, advisement, etc. A three credit hour course takes approximately seven hours of on-the-job time per week which includes four contact hours (in class) and three out-of-class hours. This does not take into consideration time spent in addition to the seven hours per day.

Therefore, the following applies for release time:
2 hours release time - 5 hours x 16 weeks = 80 hours or 11 days
3 hours release time - 7 hours x 16 weeks = 112 hours or 16 days
4 hours release time - 10 hours x 16 weeks = 160 hours or 23 days

Instructors involved in curriculum development activities at State Fair Community College are keeping a record of the amount of time they spend on the various activities in developing an individualized module. By reviewing the time spent for each development activity, we hope to better estimate the time needed to complete a module. Development activities in which a workshop would be beneficial to the writers may also be identified.

A checklist is also being tested that could be used in advance to determine the equivalent credit hours for developing a module. Some of the items considered include:

1. Availability of references, curriculum guides, lesson plans, etc.
2. Complexity of module topic
3. Number of concepts involved
4. Media requirements
5. Learning activities and evaluation procedures

The forms used to collect the information as to curriculum development activities and time involved, as well as the first draft of the checklist for determining credit hour equivalency are provided in the appendix. Both forms need further study and evaluation.

In individualizing and modularizing instruction, we encountered a number of additional development problems as discussed below.

1. Textbook approach, not competency-based.
   Occasionally writers would simply take their lesson plan outline and add information. Often this just meant duplicating a textbook method of presenting. Little emphasis was given on learning activities.

2. Slides first
   Often we encountered individuals who wanted the media staff to take pictures and then they would expect to develop a script from these slides.

3. Use of own format and style
   Some instructors had their method of organizing materials or writing, such as use of slang and did not want to compromise.

4. Copy everything or nothing
   Writer used a cut and paste approach by patching parts from different sources. Besides appearing choppy, the problem of copyright infringement developed. This also included duplicating illustrations and pictures for slides. Some module writers, in their study guides, relied heavily on supplemental materials which might not be readily available to other instructors.

5. Last thing done
   Curriculum development was sometimes considered by the writer as a supplemental or minor responsibility. This was perhaps the biggest problem. Lesson preparation and other institutional duties such as committee work was done first and curriculum development put off until later. This would result in slack periods in the media department early in the semester and then a rush of materials at the semesters closing.

Our solution to these problems, which seems to be working well, was to define the curriculum writers duties more precisely, and to make the curriculum writer more responsible to the Media Center Director. This was accomplished by tieing their curriculum responsibilities to their paycheck or to specified time periods.

Through the use of modularized instruction, mini courses, and individualized instruction, it is easier to arrange blocks of time for instructional development. This method works better in our situation than release time, as the instructor was free to concentrate on curriculum development duties.

We have found that by using a contract with the writer, the Media Center Director has more control over the development and the writer is inclined to do a more professional job as they are not paid until their contract is completed.

A curriculum development manual was also developed for use by instructors developing individualized instruction modules. This manual is divided into the following ten sections and attached to this report.

I. Competency-Based Individualized Instruction for Your Program
II. Overview of the Individualizing Process
III. Learning and the Learner
IV. Identifying Student Competencies
V. Developing Student Objectives
VI. Format and Content Organization
VII. Learning Activities
VIII. Evaluation
IX. Media Selection
X. Script Writing

This manual is provided to all instructors assigned new responsibilities for module development. Numerous examples are included for the instructor to follow. This manual will be made available to instructors of other educational institutions through the Media Center. A description is included in the brochures for each curricula area describing modules available through the Media Center.

Advisory committees were used during this project to evaluate modules developed by the media specialists and curriculum developer, and to identify curricula needs for additional module development. Advisory committee members were identified by the department chairperson. Suggestions for members were also given by state program officers and institution administrative and placement personnel.

A problem encountered was limited time at these meetings for the review of materials. The procedure that worked best included a two-day meeting with an initial review of materials the first day, with discussion and recommendations given the second day. Mailing modules to the members previous to the meeting was tried, but it was found that many individuals did not find the time to review the materials.

At the meeting, a rotational schedule was established giving each group of individuals time to review the module and record their recommendations before moving to the next module. Module review assignments were made according to each members area of expertise.

A handbook for curriculum development-advisory committees was developed and is included in the appendix. This handbook includes a statement of rationale, duties of the committee, organization of the committee, and sample forms to be used by the committee.

> Objective 2: To develop and/or revise and mediate 45 modules of individualized units of instruction in the vocational curricula areas of Agriculture, Business and Office Occupations, Health Occuptions, Welding, and Pre-employment Training.

A total of 46 new modules were developed during this project by curriculum developers and media specialists. This included five modules in agribusiness, nine modules in business and office occupations, fourteen modules in health occupations, nine modules in pre-employment training, and nine modules in welding. A list of these modules is included in the appendix.

Module topics were identified by advisory committees, state program officers, and department chairpersons. Instructors for their development were identified by the department chairperson, and the state program officer for instructors from other institutions. A contract was developed with the instructor for the development of the module. A sample contract is included in the appendix. Funds for the curriculum developer and additional media staff were provided by a state grant. The module was developed by the writer with assistance from the project coordinator who served as instructional design consultant, and the media specialists.

During this project, it was found that not enough media specialist time was included. The following time requirements have been indicated for the development of a slide program through a preliminary media specialist time analysis. Additional information needs to be collected to verify this time figure. This time requirement will also vary greatly according to ratio of live shots to artwork, script writing ability of instructor, etc. A form developed to record this information is included in the appendix.

Estimated time requirements:

1 day	on-site visitation
2 days	script analysis, development of shot sheet
6 days	on-site photography
4 days	graphics/illustrations
3 days	sound recording and mixing
3 days	selection of slides, assembly of master, and review
19 working days	(+ vacation and sick leave = 1 month)

A total of nineteen modules were revised during this project by the curriculum developers and media specialists. This includes eight modules in Business and Office Occupations, three modules in health occupations, and eight modules in welding. A list of these revised modules is included in the appendix.

Objective 3: To develop and test methodology for evaluating the effectiveness of teacher prepared individualized instructional materials in one curricula area listed in Objective 2 in one location other than State Fair Community College and Area Vocational Technical School.

A process for evaluating mediated individualized instruction modules was developed by the project staff and consultant. Included in this process were the three stages of design, review, and implementation. The individuals who should be involved in this evaluation were identified. This includes the writer, other experienced instructors, consultants from business and industry, media specialists, and students. It was noted that this evaluation of the mediated instructional module should be a continuous procedure. This process is reported in more detail in the appendix.

Four instruments were developed for use during this evaluation process. These included the Teacher's Evaluation of a Learning Module Form, the Consultant's Evaluation of a Learning Module Form, the Media Specialist's Evaluation of a Learning Module Form, and the Student's Evaluation of a Learning Module Form. These forms are included in the appendix.

These forms were used by members of the project advisory committees when reviewing the modules, by instructors developing the module, and by instructors and students in the field test situation. During the final field testing of the evaluation instruments, instructors indicated that they felt the Teacher's Evaluation of a Learning Module Form was too long for their use with every new module, so a revised shortened version was produced.

One other field test site was used in evaluating the modules for this project. Students and instructors felt the evaluation forms were appropriate. However, teachers indicated that continuous use soon become monotonous to the students, and reduced the accuracy of the results. It was recommended that multiple field test sites, three or more be used, to obtain input from several different instructors in different teaching locations, and with some variety of student characteristics. Students in the classes could be randomly assigned to evaluate the modules, so that each student would evaluate only a portion of the total modules. The evaluation forms should then be provided to the instructor and media specialists assigned to the revision of the module.

Types of comments received on the evaluation forms included:

1. Advisory committee comments:
    a. Safety factors not emphasized enough or unsafe conditions shown in slide
    b. Content of material not detailed enough, or not needed
    c. Objectives too trivial
2. Instructor comments:
    a. Level of materials in relation to student abilities
    b. Interest and motivational factors
    c. Appropriateness of learning activities
    d. Need for additional information or learning activities
    e. Time required by students to complete
3. Student comments:
    a. Like or dislike of individualized instruction approach
    b. Speed of media presentation--too fast or too slow
    c. Procedures unclear, hard to follow, or easy to follow
    d. Not sufficient information or examples presented or part of information included not needed
    e. Activities good or considered as just busy work

Objective 4: To develop a system to reproduce and distribute mediated individualized vocational instructional materials to community colleges, Area Vocational Technical Schools, and comprehensive high schools within the Department of Health, Education, and Welfare Region VII (Kansas, Missouri, Iowa, and Nebraska).

Quality control was found to be one of the most essential aspects of instructional material development during this project. If the quality was not checked and maintained during the duplication process, several problems arose. First, the instructors from institutions purchasing the materials became dissatisfied when the materials were incomplete or of lower quality. This would then affect the credibility of the Media Center and reduce the chance for repeat business.

When the quality was not checked until during the packing of orders, a delay in delivery occurred because of the time required to have the materials reduplicated. This again would affect the credibility of the Media Center.

These problems were reduced by refining the system of quality control. Additional emphasis was put on correctness of printed materials by having materials proofed by an English instructor at State Fair Community College as well as the Media Center Director and writer. Two proofings were found to be needed. The first typed draft is sent to the proofreader for checking such things as sentence construction, agreement of nouns and verbs, etc. A copy of the composer typed module is again sent to the proofreader. Here more emphasis is put on punctuation and spelling. A minor problem with this sytem is the time delay in production while waiting for proofing to be completed.

The system developed to maintain the quality included the following.

1. A review of each new module using the Media Specialist's Evaluation of a Learning Module Form by the writer, the media specialist in charge of production, and the Media Center Director and Learning Resource Center Director.
2. An evaluation of media quality by instructors field testing modules prior to their distribution.

3. Using test slides on the start of each roll of slide duplication film, which were then checked against lab master test slides by the media aid.

4. Periodic checks of slide duplicate quality by the media specialist and Learning Resource Center Director.

5. Listening to the first 10 to 15 seconds of each duplicate cassette tape by the media aid for tone and voice quality and inaudible advance tones.

6. A spot check of the cassette tape and comparison of the slide set to the script by the media center secretary as the orders were packed.

7. Employment of a part time media repair technician responsible for the maintenance of the duplication equipment.

8. Assigning each major task and the operation of related equipment such as tape duplication or slide duplication to only one indivudual who was then responsible for quality of duplicates produced.

9. Using part time student help for tasks such as typing labels and numbering and collating slides, so the media production aid could concentrate on the quality control.

10. Maintaining an inventory of repair parts for material duplication equipment.

An inventory of materials was established. The number of copies duplicated was based on the number of previous orders, so that large quantities of less frequently order modules were not kept on hand tieing up funds and space.

Five to ten days were required for the reduplication of slides. This included the camera time for duplication, delivery time to and from the lab, and lab processing time with the biggest variable being delivery time. This would be reduced in those places where a slide film processing lab is in the immediate area so the materials could be personally delivered and returned.

Cassette tapes could be duplicated and ready for distribution within one day. The biggest variable here was machine malfunction resulting in a delay for major repairs. This time was also reduced by having labels typed in advance.

Student manuals could be duplicated within two to five days with the biggest varible being the work load for the press. More advance time was required to obtain duplicates of paper materials during the first three weeks of each semester.

Four major procedures were used to organize and promote the marketing of materials to other states. First, State Department of Vocational Education program officers were contacted. Sample materials were provided to these individuals for their inspection to establish the credibility of the Media Center materials.

The mailing list of instructors in the vocational areas for which modules were produced was requested. Brochures were then developed and mailed to these instructors. These brochures gave a brief description of each module and its cost. Sample brochures are included in the appendix.

A portable Media Center display was developed for use at district and state vocational association meetings. Included in this display were samples of materials available. This display was set up at the following meetings.

1. Missouri Vocational Association Convention in Columbia, Missouri
2. Kansas Vocational Agriculture Teachers Association in Manhattan, Kansas
3. Kansas Vocational Association Convention in Wichita, Kansas
4. Iowa Business Educators Conference in Des Moines, Iowa
5. Iowa Vocational Association Conference in Des Moines, Iowa
6. Iowa Business Educators Conference at Marshalltown, Iowa

Brochures were handed out during the display, and sample slide programs shown on a small viewing screen.

A booth was provided in the Media Center for instructors to preview materials during visits to State Fair Community College. During this project, instructors from three non-Missouri schools visited the center.

Slide programs were not mailed to instructors for preview because of staff time limitations for mailing and rechecking after each preview, and because of the cost involved. When preview was requested, a copy of the script was provided. This preview policy needs additional study as to its effect on sales.

The effectiveness of this dissemination program can be seen by the increase in out-of-state orders. The following table compares Missouri and non-Missouri orders for each quarter of the project.

	Missouri	Non-Missouri
October 1, 1977-December 31, 1977	21	3
January 1, 1978-March 30, 1978	12	12
April 1, 1978-June 30, 1978	9	10
July 1, 1978-September 30, 1978	30	18
October 1, 1978-December 30, 1978	16	5
January 1, 1979-March 30, 1979	8	3
Totals	96	51

Objective 5: To collect and analyze data that would indicate the cost of developing, reproducing, distributing mediated individualized instructional materials to a four state region through a centralized Media Production Center.

The following costs in developing mediated individualized instructional materials were identified.

1. Coordination and instructional design assistance
2. Curriculum developer's salary
3. Media specialist's salary
4. Media aid's salary
5. Secretary's salary
6. Supplies for curriculum developer
7. Materials for media presentations--graphics, film, audio tape, etc.
8. Proofreading
9. Equipment repair
10. Field test copies
11. Travel
12. Communications -- telephone and postage

A wide range of costs were found in this area depending on the characteristics of the particular presentation. Some items such as the salary of the coordinator/instructional design assistant must be spread over not only the various modules developed, but also other activities such as the dissemination of materials.

The curriculum developer's salary related to the credit hour equivalent of the module and the instructors place on the salary schedule. These costs ranged from $612.00 to $970.00 per module. The media specialist's salary related to each presentation also varied. For a presentation requiring less than three weeks, this cost could be as low as $600.00, while more complicated productions took more time with a related salary of $1,000.00 or more. Presentations with a large proportion of artwork were more expensive than those that were primarily live photography. Presentations with multiple off campus photography sites were more expensive to produce than those where the entire photography could be done in the instructional lab or Media Center studio.

The amount of time spent by the media aid per presentation also varied greatly. Presentations with numerous kodaliths and graphic photography required more of the media aid's time. This would range from as low as two days to as high as seven days.

The amount of time spent by the secretary on each presentation also varied depending on the length of the student manual (from 5 to 40 pages) and the length of the script. It is estimated that the secretary spent from five to fifteen days on typing scripts, kodaliths, and rough drafts and composer copies of the student manual and instructor's guide per module. Because of other responsibilities, it was hard to identify the specific time devoted only to module development.

The costs for materials used in developing the slide programs varied according to the length of the presentation. With a six to one ratio of slides shot to those used in the master, the cost of film and development equated out to about $1.00 for each slide used in the master presentation. Costs for audio tape averaged around $5.00 but was more when sound effects or individual comments were recorded on location. Graphic costs also varied greatly according to the number of illustrations used in the slide program. Due to this large cost variation, additional data needs to be collected and correlated with media presentation characteristics such as length, photography location, etc. before an accurate estimate of raw material costs per presentation can be made.

The costs involved in reproducing media presentations could more easily be identified. These included:

1. Media aid's salary
2. Order secretary's salary
3. Slide duplication costs
4. Cassette tape duplication costs
5. Paperwork duplication costs
6. Postage and shipping materials
7. Equipment repair

A form was developed for the media aid to keep record of time spent in duplicating modules. The time spent ranged from 4.5 to 21 minutes per copy with an average of 9.36 minutes for shooting, mounting, numbering, and collating the slides. A total of 215 copies with 13,195 slides were included when figuring this time. Salary cost for this average $1.26 per presentation which is considerably less than commercial charges for duplicating, numbering, and collating slides.

A secretary would spend approximately five minutes per presentation packing orders involving only paperwork and 15 minutes for presentations including slide programs, for respective labor costs of 33 cents and 98 cents per presentation.

When cassette tapes were duplicated in quantity, approximately five minutes of the media aid's time was required per presentation for a labor cost of 33 cents. These costs will increase as institutional salary schedules are increased. They will also increase if additional staff is secured to allow more time for quality control of material duplication.

Duplicating costs for the paperwork in a module ranged from 15 cents to $1.75 depending on the number of pages included. Shipping and postage costs ranged from 50 cents to $2.50 per presentation depending on material weight and distance shipped. Slide material costs per presentation ranged from $2.88 to $20.74 when all work but film processing was done at State Fair Community College.

These costs were used as the basis for determining presentation costs given in the brochures. Costs of materials only ranged from $2.00 for those modules having only paperwork to around $40.00 for those modules having multiple slide sets. These costs, when added to the other costs listed earlier, would give a better picture of the total duplication costs. From preliminary data, material costs would need to be marked up approximately 50 percent to cover these other expenses related to duplication of modules.

The following costs were identified for activities involved in the promotion of individualized materials.

1. Media Center coordinator's time
2. Correspondence--telephone and postage
3. Brochure development and distribution
4. Development of displays
5. Travel to conference
6. Exhibit fees at conferences

For each conference at which materials were displayed, approximately five days of the media coordinator's time was required. This included 1½ days of planning the display and selecting materials, 1½ days of travel, 1½ days of conference time, and ½ day of follow up. Other promotion activities included contacting state department personnel for mailing lists, answering letters and telephone questions about materials available, and setting up materials for preview and answering questions of visitors to the Media Center.

A portable exhibit which could be quickly and easily erected and transported was needed for the Media Center display at various vocational association conferences. The first display was constructed by institutional staff for approximately $50.00. A commercially prepared display system was later purchased for $465.00 so that the appearance of the Media Center display would be comparable to other exhibitors at these conferences.

Conference exhibit fees ranged from $25.00 to $75.00 for local and state conferences. No large regional conferences were attended because exhibit costs were often in excess of $250.00.

Travel to these conferences ranged from $50.00 where only mileage costs were necessary to over $125.00 when motel costs were also included for conferences with longer display times. Travel costs for regional conferences at greater distances would be accordingly higher.

Costs for distributing brochures were directly related to the number of institutions with programs in that vocational area. These costs included graphic development, printing, staff time for stapling and typing and affixing labels, and bulk postage rates. Per brochure costs were much higher for programs such as welding where less than 500 brochures were mailed out than for business and office occupations where over 2,000 brochures were mailed out. Printing costs were approximately 15 cents per three page brochure, and bulk postage rates slightly over three cents. An accurate estimate of secretarial staff costs involved in the distribution of these materials has not yet been completed.

Conclusions and Recommendations

In order to provide instructional materials for vocational instructors to utilize in competency-based individualized instruction programs, a coordinated system of curriculum design, instructional material development, and material dissemination is needed.

Statewide advisory committees in each instructional program area composed of industry and educational representatives are needed to assist in the identification of competencies, to review instructional materials available, and to identify curriculum material needs. The individuals on these committees should be carefully selected with the industry representatives serving as content specialists and the educational institution representatives providing input as to strategies and techniques for incorporating the content into the instructional program.

In order to prevent the duplication of curriculum development activities by numerous institutions, statewide curriculum development center(s) is/are needed for the specific purpose of producing competency-based mediated individualized instruction materials. These centers should have a staff of professional instructional designers and media specialists to assist instructors in the development and implementation of these materials. These centers must also have adequate production facilities and equipment to develop the type and quality of media needed.

Instructors developing individualized mediated modules should be selected as to their expertise in the content area, their ability to organize and manage instruction, and their commitment to the philosophy of individualized instruction. These instructors should have full release time from their instructional duties to allow them to concentrate on instructional development. During this time they should be directly responsible to the individual in charge of instructional development, not to their vocational department chairperson. A monetary incentive should be provided these individuals to reward them and encourage them for their extra effort toward improving instruction.

Instructors from various educational institutions should be involved in the development of the materials thus providing a broader experience background. This also provides a larger pool of instructors in each vocational area for the selection of the curriculum developer.

The curriculum development competencies identified in the earlier section of this project report need further verification, since the number of instructors involved in curriculum development activities in this project was small with many having curriculum development experience prior to the start of this project.

Although the curriculum manual written in this project has been utilized by new curriculum developers in this project, its effectiveness also needs additional study since the number of these new curriculum developers was small.

Periodic workshops should also be provided to keep the curriculum developer and media specialists current with changes and new technology of instructional design. These workshops would also allow for the exchange of ideas and discussion of common problems.

Individualized mediated instructional materials developed at these centers should be carefully evaluated to insure their effectiveness. During their initial development, they should be reviewed by other instructors in the occupational area. The content should also be reviewed by representative(s) of business or industry. It should then be trial tested with a few students and then following revisions, field tested at several different educational institutions. This will help insure that the module is effective for various groups of students as well as usable in somewhat different settings.

The instructors field testing the materials should be given specific guidelines as to the use of the materials and the collection of data. Institutions and instructors utilized for field testing must have a commitment to individualized instruction. Providing these institutions with a complimentary copy of the materials will provide an added incentive for their cooperation.

A regional or national network is needed for the collection and dissemination of mediated individualized instruction materials. The results of this project have shown that instructors in other states will utilize new materials if they are aware of their existence and are confident in the credibility of the producer. There have already been a large number of high quality individualized modules developed which are being utilized at individual institutions. Guidelines could be established as to format, quality, etc., of materials to be included in this distribution network. With minor revisions these could be added to this distribution system by providing a monetary incentive to their developer or through exchange of materials agreements between centers. Each state curriculum development center could provide a brochure of materials produced and available by them to the other centers. A combined brochure listing materials by area could be developed. This would also help reduce the duplication of material development activities.

With the increasing cost of travel and display fees, it is highly inefficient for each small producer to individually display and market their materials. Each state center would then be responsible for the display of combined materials at educational conferences in their area.

In order to keep the costs of materials economical for other educational institutions, these curriculum development centers should receive continued partial funding. Sales of materials should provide an income to cover all costs associated with the duplication, dissemination, and promotion of these materials. However, because of the high costs for staff, equipment, and materials associated with the production of mediated instructional materials, outside funds should be provided to help cover the costs of new productions.

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Definition of Terms

1. Individualized Instruction - development of curricula and media which allows open-entry, open-exit, flexible scheduling to meet the needs of each individual.
2. Modularize - develop self-contained individualized instructional packages around competency-based objectives.
3. Competency-Based Instruction - development of curricula, based upon consultation and advice from representatives of business, industry, and education which includes attitudes, knowledge, and skills that an individual needs to master.
4. Media Center - A center for the development, reproduction, and dissemination of mediated individualized instructional materials in vocational education.
5. Mediation (Mediated) - Audio and/or visual methods of presenting instructional materials. Examples are slides, slide/tapes, filmloops, and video cassettes.
6. Evaluation - A method of determining if materials are effective or meet their stated objectives, and producing data as to needed changes.
7. Curriculum Manual - A procedural type manual to be used by administrators, curriculum developers, and advisory committees in the development, revision, and duplication of individualized mediated instructional materials.

APPENDIX A

AN INSTRUCTOR'S GUIDE TO THE DEVELOPMENT OF INDIVIDUALIZED INSTRUCTION MODULES

AN INSTRUCTOR'S GUIDE TO THE DEVELOPMENT OF INDIVIDUALIZED INSTRUCTION MODULES

Available from:

THE MEDIA CENTER
State Fair Community College
1900 Clarendon Road
Sedalia, MO 65301

Robert Schwindt
Project Coordinator

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However, the opinions and other content do not necessarily reflect the position or policy of the Agency and no official endorsement should be inferred.

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PREFACE

This manual was developed under United States Office of Education Grant #G007702062 by the staff of State Fair Community College, Sedalia, Missouri. Dr. F. M. Miller, Associate Professor in the Department of Practical Arts and Vocational-Technical Education at the University of Missouri, served as consultant. Staff members contributing to this manual included Marvin Fielding, Vice-President for Instruction; Nila Hibdon, Dean of Vocational-Technical Education; Shirley Evans, Business and Office Department Chairperson; Florence McGuire, Health Occupations Instructor; Judy Kuhlman, Director of Experience Based Career Education Project; Ken Schondelmaier, Natural Science Department Chairperson; Charles Cogar, Media Coordinator; and Robert Schwindt, Media Center Project Director.

The overall purpose of this manual is to assist the curriculum specialist or instructor who is developing competency based individualized instructional materials.

Individualized instruction is recognized as a current trend in teaching methodology. The adoption of individualized instruction to meet the different learning rates and styles of students has been a long-time goal of education. The lack of quality mediated individualized instructional materials in vocational education has hampered the widespread adoption of this instructional method.

One of the key elements in the development of quality instructional materials in vocational education is the competencies of curriculum developers. They must possess a variety of competencies in the field and follow sound procedures during the curriculum development process. They need to have background theory and technology of curriculum design, program development and instructional materials preparation. They must possess sound judgment based on the psychology of human learning. In addition, the task of designing and developing vocational curricula requires an up-to-date knowledge of available vocational curriculum materials and an ability to utilize and produce a variety of mediated materials.

By following the procedures given in this manual, an instructor should be able to develop a high quality competency-based individualized instructional modules useable in their classroom and suitable for duplication and distribution to other institutions.

Robert Schwindt
Project Coordinator/Media Center Director
March, 1979

Section I

COMPETENCY BASED INDIVIDUALIZED INSTRUCTION FOR YOUR PROGRAM

The public community college is more diverse in its defined functions, programs, clientele, and philosophical base than any other educational institution of higher education in the United States today.

Over the last two decades it has been the fastest growing segment of higher education. During the sixties, a new community college was being organized on the average of one per week. In 1977 there were 1,030 public community colleges with an enrollment of 3,939,173 students.

The growth in number and enrollment of Missouri Community Colleges has paralleled that of the nation. In 1976 Missouri had 15 public community colleges with a college credit enrollment of 52,235.

A good community college is pictured as openly and honestly a community institution. Community resources are used as an extension of the classroom and laboratory to provide viable learning experiences for students. A community college should remain sensitive to traditions, problems, and education needs of the community it serves. The stated goals, programs, and services offered by a community college should reflect these community needs.

A community college is an organization of and for the people it serves. The following characteristics reflect the uniqueness of community colleges.

1. Democratic - low tuition and other costs; nonselective admission policies; geographically and socially accessible; and popularized education for the largest number of people.

2. Comprehensive - a wide range of students with widely varying abilities, aptitudes, and interests; a comprehensive, flexible, curriculum to meet the broad needs of such students.

3. Community centered - locally supported and controlled; local resources utilized for educational purposes; a community service improving the general level of the community.

4. Dedicated to life-long education - education programs for individuals of all ages and educational needs.

5. Adaptable - to individual differences among students, differences in communities, and the changing needs of society.

In order to improve retention and to provide for individualized learning differences of students, State Fair Community College undertook the task of developing individualized curriculum in business and office occupations in 1969. Since that time, a number of other vocational and academic courses have been individualized.

Our experience would indicate that individualized instruction offers the following advantages.

1. Each course in a curriculum can be offered several times during the day and evening. Students have a great flexibility in scheduling and may enter and exit a program at any time. This makes it possible to meet the immediate educational needs of adults, Comprehensive Employment and Training Act (CETA) clients, and other special needs students.

2. Students are afforded the opportunity to:

    a. Master a lesson before going on to the new lesson, rather than being forced to keep up at a group rate.

    b. Redo production work and retake tests when they do not do well the first time.

    c. Progress at a speed of learning appropriate for them as individuals.

    d. Pick up where they left off when they miss class.

3. The curriculum focuses upon the development of the skills and knowledges required to secure employment in an occupation.

4. It permits the instructor to spend time with each individual student on a scheduled basis.

The overriding goal of a vocational-technical program is to prepare students for gainful employment; therefore, the content of vocational programs and courses must be based on the tasks that students will be called upon to perform as workers.

The literature and our experience with an individualized curriculum would indicate that the following five characteristics are essential to the development of competency-based individualized materials (Elam, 1974).

1. Competencies to be acquired by the student are identified, based upon what a student must know and be able to do. The competencies are stated as behaviors which can be assessed and are shared with the student at the beginning of the course.
2. Criteria to be used in assessing each specific competency are stated, including the conditions under which assessment will occur and the expected level of mastery. Criteria are also shared with the student at the start of the course.
3. The instructional program focuses upon development and evaluation of the specified competencies by the student.
4. Assessment of the student's competency uses his/her performance as the primary source of evidence.
5. The student's rate of progress through the course is determined by demonstrated competency rather than by time or course completion.

The following six characteristics are also considered essential, but not necessarily unique, to a competency-based individualized program.

1. Instruction is individualized and personalized.
2. The learning experience is guided by feedback.
3. The program as a whole is systematic.
4. Emphasis is on exit, not on entrance, requirements.
5. Instruction is modularized.
6. The student is held accountable for performance.

In the development of individualized instruction in vocational education, it is imperative that close attention be given to the following steps:

1. Verification that employment opportunities exist for students in a given occupational area.
2. Identification of specific job titles in the occupational area which have application for school-based programs.
3. Identification and verification of competencies which students must acquire to secure employment.

4. Development of instructional objectives and criteria for assessing student mastery of objectives.

5. Development of materials and media related to instructional objectives.

6. Field testing and revising of materials.

7. Continued review of required competencies and revision of materials as needed.

Purpose of This Manual

As discussed earlier, individualization of instruction and competency-based instruction offer many advantages to the instructor and the student. Since these two concepts differ from what an instructor is utilizing as a traditional teaching method, the instructor adopting or developing competency-based individualized instruction methodology and/or materials is faced with many new challenges.

This manual is designed to assist the instructor who is developing competency-based individualized instructional materials for use in their classroom. Although many of the examples used are from vocational subject areas, the principles and procedures are the same for the instructor in an academic subject. Instructors must first look at the setting in which these materials will be used (see Section II). Then they must study the needs and characteristics of their students (see Section III). Determining what skills, knowledge, and attitudes should be taught, and developing student objectives to match the content are discussed in Sections IV and V. A format for organizing individualized materials is presented in Section VI. Selecting student activities to increase learning is discussed in Section VII. Since evaluation is an essential part of all instruction, Section VIII discusses evaluation of the student's performance and the materials developed. Various media, as a major delivery method, are often used in individualized instruction. Section IX discusses the types of media available and the characteristics of each, while Section X describes the development of a script for a media presentation to be utilized with individualized instruction.

There are a number of procedures to follow in developing an individualized module. With this manual as a guide and using previous instructional experience, an instructor should be able to produce a well written, organized, and effective module.

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Section II

OVERVIEW OF THE INDIVIDUALIZING PROCESS

Introduction

The most common conception of the role of a teacher is that of the prime source of wisdom. The model is one of the teacher as the giver of information and the student as the receiver. Recently, the role of the teacher has changed. New options for instruction have changed the role of the teacher to that of a director, facilitator, or coordinator of learning experiences. New concerns for the individual learner and new ways of presenting information must be considered to create an effective design for instruction.

If teachers are to play the role of learning coordinators successfully in today's schools, they must possess the basic knowledge and concepts of a subject matter field, and they must know what they want to teach; that is, they must be able to select appropriate content. The selection of content is ultimately the responsibility of individual teachers. They look to state and locally developed syllabi, new curricula in the disciplines, advice from colleagues, departmental chairpersons and supervisors, and personal experience in the field for guidance in selecting content.

After determining the content and objectives, teachers must assume the directorship of learning and develop a plan or system for teaching the defined goals and objectives. Planning must be done, which includes identifying elements and recognizing the existing interrelationships so that a specified goal can be reached at a specified time. In other words, they are dealing with a comprehensive system in which all elements are related to each other; all elements contribute to a common goal. A change in one element may cause a change in other elements or in the system itself. A change in one element may even result in a change in the goal or objective (Gerlach & Ely, 1971).

In the individualizing process many elements must operate within the developmental system. They include selection of content, specification of objectives, the assessment of entering behaviors, the strategy which will be employed, the organization of students, the allocation of time, the allocation of learning spaces, and the selection of appropriate learning resources. Once the design of the previous elements has been established, the evaluation of teacher and learner performance follows, with an analysis of feedback by both the teacher and the learner.

The Audience

The first consideration in the developmental system is that of each individual learner. The major problem with past strategies for the improvement of instruction has not been due to the inappropriateness of any particular method or technique, or to the poor quality of any particular materials. Rather, the difficulty has lain with the failure of the existing systems to deal with the differing abilities and requirements of today's students. A learner is an individual, and must be taught accordingly. Innovations such as small group work, audio and videotape lectures and demonstrations, and teaching machines and programmed instruction materials have all helped, to a degree, to improve education and training. Yet, what is needed is a system which permits the selection of both the curriculum and the manner in which it will be presented for each individual learner. Individualized learning systems have been developed to accomplish just this.

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In planning an individualized learning system, the distinction between individualized learning and independent study must be remembered. The two terms are not synonymous. Individualized learning is a more structured program than independent study, while at the same time remaining very flexible. To individualize instruction in a subject area, the student and the teacher select from a variety of materials and media and determine the sequence of study that appears most effective in terms of the student's abilities and needs. A student may choose to work independently in an individualized learning program, but merely working alone does not mean that a student is participating in an individualized learning program. Many teachers feel threatened when asked to experiment with the role of instructional manager. Changing the curriculum to individualized instruction is not necessarily going to cause an improvement in the instructional process. The learning system is merely a form of providing instructions, and nothing more. If a teacher is not willing to assume other media or persons who can offer these instructions, the frustrations that result can be overwhelming and in most cases will spell defeat for an individualized program. Flexibility, both in planning and in implementation, is essential to insure the success of any individualized program.

The learning styles of students should be of major concern when determining the learning activities of a package. These should allow students to learn by using many different methods and by encouraging a curiosity for learning and creative thinking. Limited learning styles (activities) available to students in the classroom have considerable negative effect on the motivational success of the program. If the majority of learning activities in a learning package involves reading and discussion, in all probability the students will become bored, and motivation for continuing will be lost. As the initial interest wears off, motivation will decline until apathy or discipline problems occur. Diversified learning activities must be available to allow students to operate in whatever learning styles best suit their needs (Duane, 1973).

Instruction is designed for specific types of students. These students must possess certain characteristics and prerequisite skills in order to benefit fully from the instruction. General learning characteristics must be described, particularly those which might influence the student's success or failure with the material. Necessary prerequisite skills or entry behavior should also be specified with the instruction. Individualization is more than a philosophy, more than an instructional process, and more than a means whereby both the teacher and student become responsible, cooperative human beings who are both dependent upon and accountable to each other and themselves. Individualization is the recognition that for each student, whether child or adult, learning is a pervasive, developmental process that varies, often completely, from one particular situation to the next.

Designing individualized instruction begins after deciding what the student is to do (objectives). However, before the instructors develop any instructional materials or modules, they must be able to describe very precisely the students for whom the module is designed. Listing in some detail everything known about the students which might be relevant to their learning the content or skills to be taught. There are two types of information to be specified about the students. The first are general learner characteristics, and the second are statements of entry behavior or what the student is expected to be able to do before he begins the instructional process.

Learner Characteristics

In considering learning characteristics there are numerous variables to consider. One section of this handbook offers an in-depth presentation of how to analyze learners (see Section III), but the importance of this aspect in the foundation of the individualizing process cannot be overemphasized.

In the process of systematically designing modules, identify the characteristics of the students for whom the module is being developed. Under the heading of Learner Characteristics, list any factor that may affect their learning of the materials to be presented. The following list specifies some of these factors.

sex
ethnic origin
attention span
physical or mental handicaps
level of motivation
intelligence
visual or audio orientation
verbal ability
learning style
age/grade level
socioeconomic background
emotional maturity
dexterity for motor tasks
special interests
reading ability
technical vocabulary
mathematical ability
personality characteristics

Previous education and experience which relate to the task or subject matter will be discussed later under the heading of Entry Behavior (Russell, 1974).

The most important single facet of individualized instruction is its built-in provision for individual differences among learners. Provision for individual differences is a necessary response to the observation that people seem to learn in different ways and that they bring differing backgrounds and abilities to the learning task. A key issue in learner characteristics is learning styles. Frank Riessman describes the following three learning styles: (1) visual, (2) oral-aural, and (3) physical. The instructor would probably have little difficulty identifying students who could be classified primarily in one or another of these categories. However, these classifications are more likely to describe the particular learning skills which students have or have not developed than basic differences in learning "styles."

Because students differ in their development of learning skills, it is necessary to provide alternative learning materials and activities. For example, field trips, films, and laboratory exercises, primarily "visual" and "physical" in nature, provide students with perceptual experiences. Reading materials, "visual" and "verbal" in character, cause recall of previous experiences. Teacher-pupil conferences and small group discussions are "oral-aural" and "verbal" in character and provide needed feedback to the learner. Activities such as building objects, models of cities and assembly line operations are "physical" (Kapfer & Ovard, 1971).

Entry Behaviors

Entry behavior is the level of knowledge, attitudes, or skills at which the student begins instruction. Entry behavior includes those abilities which the student already possesses that are relevant to the learning task. This includes the prerequisite knowledge, attitudes, or skills which characterize the target population or those which the student is expected to possess and may/will be required to demonstrate before beginning the module. The purpose of the module is to advance the student from where he/she is (entry behavior) to where the instructor would like him/her to be (terminal behavior).

FIGURE 1

Entry Behaviors + Individualized Instruction Module → Terminal Behaviors

Individual modules, although logically related, can be used individually by students or can be combined in several possible sequences. For example, a module on sentence structure might provide the entry behavior for another module on paragraph writing, which in turn would be a prerequisite for a module on essays. In a series of modules, the terminal behavior of the first module is often the assumed entry behavior for the second and so forth.

Obviously, it is necessary to clearly specify the skills and knowledge needed by the students using the module if they are to succeed. Vague or broad descriptions lack specificity and are of little or no value to the students because they do not know what is assumed. The teacher designing the packet does not know where to begin, and the teacher using the material does not really know whether it is appropriate for the students. Often, a statement such as "there are no prerequisites for this module" misleads students into thinking they can succeed, when, in reality, they may fail to complete the module satisfactorily because of an insufficient entry behavior. Almost every module will have some prerequisite skills, such as the ability to read at a certain level or the ability to comprehend spoken language. Another common error is to state in the entry behavior that the student should have "taken a course in welding." They may have taken the course and still not have learned or remembered anything about welding. It is highly recommended that the entry behavior be stated in the same format as the objectives.

The final decision about the necessary entry behavior rests with the instructional developer, and the quality of the analysis is determined by the extent to which the developer knows the students and understands the subject matter.

Unless the necessary entry behavior has been mastered recently, it is advisable to construct and administer a test to assess it. Such a test is an entry test which is used to verify that the prerequisites for a given module can be demonstrated by students before they begin that module. Often, the entry test is combined with the pretest. The distinction between the entry test and the pretest is quite simple. The entry test measures the prerequisites or entry behavior for the module, while the pretest measures the degree of comprehension of the objectives or terminal behavior before the student begins the module. The teacher will probably want to design a pretest to determine the student's achievement in the subject to be pursued. This screening device might indicate a student's ability to define basic terms in the subject area. The ability to describe basic concepts will also be tested. The fundamental question which must be answered prior to formal instruction is, "To what extent has the student learned the terms, concepts, and skills which are part of this course?" It is good practice to organize the course in units and to administer a pretest before each unit. This procedure serves as a check on previous learnings as well as a guide for the teacher and the student in planning future learning experiences (Gerlach & Ely, 1971).

Instructional Strategies

The term "instructional strategies" if often used in place of the more traditional term, "method." A strategy is the teacher's approach to using information, selecting resources, and defining the role of the students. It includes specific practices used to accomplish a teaching objective. "Method," in the instructional sense, is defined as a systematic plan for presenting information.

Determining how and when to utilize individualized instruction as a teaching method is dependent on the total curriculum plan. There are very few instructional programs that cannot be totally individualized, providing the time and resources are available. Many times an instructor has decided to begin individualizing a program but is at a loss as to where to begin. Curriculum organization is a must before an instructor can begin preparing individualized instruction modules. In practice, there are degrees of individualized instruction ranging from idealized methods to the use of single operating features which are a start in the right direction.

The basis for believing that individualized instruction is educationally worthwhile is inherent in the nature of man. No two living organisms are alike. Accepting that statement leads us to the following assumptions:

1. No two learners achieve at the same rate.
2. No two learners achieve using the same study techniques.
3. No two learners solve problems in exactly the same way.
4. No two learners possess the same repertoire of behaviors.
5. No two learners possess the same pattern of interests.
6. No two learners are motivated to achieve to the same degree.
7. No two learners are motivated to achieve the same goals.
8. No two learners are ready to learn at the same time.
9. No two learners have exactly the same capacity to learn.

By addressing these assumptions, individualized instruction provides advantages both for the student and for instructors.

For the Students:

1. It enables them to proceed at their own pace through the study of each subject.
2. There is a one-to-one relationship between the learners and the subject being studied.
3. It permits an immediate response to their answers; thus, immediate satisfaction is gained.
4. It enables them to understand better the structure of the subject being studied.
5. It enables studying in greater depth those aspects of the subject which diagnostic tests indicate are needed and moving with greater speed on those materials with which they are more familiar.
6. Instruction is non-graded; each student can proceed in a subject as far as his/her ability permits.

For the Teachers:

1. It frees them from teaching many of the routine basic skills of a subject.
2. It enables them to meet more accurately the instructional needs of each student.
3. It furnishes them with diagnostic devices.
4. It allows them to spend more time with students who need the most help.
5. It enables them to bring a structured, carefully thought-out program to their pupils.
6. It brings about a higher degree of job satisfaction.
7. It helps them to serve not only as lecturers but also as guides to the pupils in their efforts to increase their knowledge of a given subject.

Role of the Instructor

Based on the previous assumptions, instructors combine knowledge about the learning process as they develop individualized instruction. They have seen that:

1. Students accomplish more with increased retention when they can perceive the relevance of the subject matter.

2. Student participation in the learning process increases learning.

3. Student learning responds positively to self-evaluation.

4. Students need most to learn the process of learning, which is used continually after any type of formal education has ceased.

In view of these tenets, the role of the instructor as a learning coordinator is to develop persons who seek opportunities to learn and who have the capabilities for setting their own goals, planning an instructional program, and evaluating and monitoring their activities as learning progresses.

The role of the instructor is not just a communicative device. Skills in determining objectives and developing materials that give the student the opportunity to achieve these objectives are used by the teacher and define the role. Instructors must be flexible resources in meeting the individual student's needs. Once the instructional program is developed, more time is available for the teacher to devote to motivation, orientation, and individual consultation. Guidance from the instructor is critical to success of the student with individualized instruction. Often students have not had previous experiences with this type of instruction and are not aware of what their responsibilities in the learning process are.

The basic concept of the teacher's role is to make the system function. This includes:

1. Determining and evaluating the needs of the student.
2. Development of the instructional program.
3. Planning for short- and long-range goals to be accomplished.
4. Supervision of preparation of instructional materials by other sources.
5. Development of an effective learning environment.
6. Continual evaluation of the program.

Role of the Student

In an individualized instruction approach, the student is presented with instructional objectives before instruction begins. A variety of instructional strategies are designed to optimize learning on a given set of objectives. More than one approach should be made available for the students in order to allow them the "most appropriate" situation.

Students control much of their own learning by choosing the pace, time, and, in some instances, place that is most convenient and effective for them (Gerlach & Ely, 1971).

There is no inherent magic in any particular number of people learning together. The objectives determine group size. Objectives have been stated and refined, content selection has been made, criteria of satisfactory performance have been identified, and entering behavior has been measured. Now we must answer three basic questions.

1. Which objectives can be reached by the learner on his/her own?
2. Which objectives can be achieved through interaction among the learners themselves?
3. Which objectives can be achieved through formal presentation by the teacher and through interaction between the learner and the teacher?

Allocation of Time

The determination of strategies and techniques to be used in the various groups forces a decision concerning time utilization. The plan for use of time will vary according to subject matter, defined objectives, space availability, administrative patterns, and the abilities and interests of the students. Frequently the best determinant of time allocation is the teacher's analysis of the three questions above. The teaching plan should take into account the estimated time for each type of activity. No teacher should feel bound by any formula for allocating time; rather, they should analyze the objectives and space availability before making the time estimate. However, sometimes there is very little that the teacher can decide about time allocation. In such cases, they must ask themselves, "How can I best attain the objectives with the time constraints imposed on me? What grouping, what space utilization, what teaching strategy, what resources are most compatible with the time allocation patterns that I must use?"

For example, some schools still maintain a standard 40 to 55 minute time period which minimizes the opportunity for allocating time in constantly varying blocks. Planning for optimum use of time must be coordinated with the organization of groups and the allocation of space.

Allocation of Space

Many classes are taught in classrooms equipped with 30 to 40 student desks, a teacher's desk, and built-in teaching tools such as a chalkboard and a bulletin board. Traditionally, the desks are arranged row by row with the teacher's desk at the front of the room as a focal point. Because of tradition, many teachers uncritically accept this type of arrangement as an excellent one for the expository approach using the lecture technique. Projected audiovisual materials are typically used in this kind of learning space, and discussions can also be carried on in this type of environment. But this traditional arrangement is only one possibility. Some other possibilities are described below.

Large Group Spaces - With the emphasis on groups of various sizes, several classes often join for formal presentations in large groups of 20 or more, depending upon the subject matter and the grade level. This, of course, usually necessitates a move from the regular classroom to a larger instructional space.

Small Group Spaces - Small group spaces do not require movable walls; they do not even require extensive renovation of the classroom. It is often possible to assign several small groups to areas within the room, each to carry on work in its own area or corner. Since most of the classroom furniture today is movable, such small groups can be arranged easily. In some cases schools use portable partitions to help create some visual isolation of separate groups within a room. However, visual materials usually present a minimum source of distraction to other groups if each group is actively occupied with its own tasks. When the group needs audio materials, the students can use headsets to avoid disturbances caused by sound from a loudspeaker.

Independent Study Spaces - Within the standard classroom, students can carry on independent study activities. In these classrooms students work independently at their desks regardless of the overall room arrangements. However, educators are beginning to realize the desirability of independent study spaces, especially when audio and visual materials are needed for individual rather than group instruction. Libraries are beginning to provide the option of a carrel or the traditional work table. Some carrels are being placed along the walls in existing classrooms. These highly desirable spaces belong in all classrooms.

Determination of Space Allocations - Given the alternative of large spaces, small spaces, and independent study spaces, the teacher must consider the three important questions mentioned earlier, for in the final analysis, the allocation of learning spaces must be based on learning objectives.

1. Which of the objectives can be reached by the learners on their own? (Students will be allowed to use independent study spaces to pursue these goals by themselves.)

2. Which objectives can be reached through interaction among the learners? (Students will be directed to groups which can be arranged within the classroom itself or to small rooms where interaction activities can take place. The teacher may rotate from group to group, or if a team-teaching approach is being used, members of the team may be assigned to specific groups.)

3. Which objectives can be achieved best through formal presentation by the teacher and through interaction between the learner and teacher? (Students will meet in one large group or will join with other classes for listening and observing.)

Greater efficiency and effectiveness are possible in the teaching-learning process once the teacher begins to group learners in relation to the objectives being sought.

Selection of Media

There are implications for the use of individualized instruction and media that must be considered.

For independent study - There is a wide variety of resources which students can use as individuals, including books, programmed instruction, audiotapes and discs, slides, filmstrips, and 8mm films. In planning for the use of independent study spaces, teachers use many media which are available as well as some which they have made. All such spaces should be equipped with at least two electrical outlets and appropriate equipment. The use of headsets provides audio isolation for listening.

For small groups - Various media which students have found in their independent study research will be shared with the small group; recordings on audiotape and videotape can be made for future reference and for the teacher's review when he or she is not in attendance. Good acoustics are required for these spaces so that sound will not be easily transmitted to other spaces and so that recordings can be made with minimal noise in the environment.

For large groups - Materials which cannot be easily used or those which are too expensive for independent study or for small groups can be used, e.g., videotape recordings, long films, and visiting resource people. Chalkboards are not very useful in large group spaces; therefore, overhead projectors are necessary. Large screens for two or three images are often required.

Just what does the media selection mean in operational terms? It means that the instructor has to begin by stating the objectives in behavioral terms. There is no shortcut. For every medium that is properly selected, the objective is the reference point. Other considerations in the selection process include answering the following questions.

1. Appropriateness (Is the medium suitable to accomplish the defined task?)
2. Level of sophistication (Is the medium on the correct level of understanding for the students?)
3. Cost (Is the cost worth the potential learning from this particular medium?)
4. Availability (Are the materials and equipment available when the teacher needs them?)
5. Technical quality (Is the quality of the material acceptable? readable? visible? audible?)

Without answers to these key questions, there is not much point in selecting the best medium to accomplish the defined objective.

The teacher is the most important element in the spectrum of instructional resources. The inviting character of an array of instructional devices should not overwhelm the teacher, nor should the availability of materials ever be the sole cause for their use. Prior determination of objectives based on the selection of content is a minimum requisite for selection of instructional material. The teacher will have assessed the pupils' entering behaviors, will have selected the method and the techniques appropriate to the objectives, and will have made decisions about the group size and the time to be spent with a particular technique. When we consider the full range of instructional media available to the teacher, we should understand that these media will be selected in terms of responses desired by the teacher from the learners, not in terms of stimuli alone. Once an objective is defined behaviorally, we can begin the selection of an instructional medium.

As all of these situations are reviewed, it is equally important to bring into account the cost restraints and availability of these types of media. It is a matching process that requires many considerations.

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Section III

LEARNING AND THE LEARNER

To be able to truly individualize instruction two very important groups of information are necessary. First, what do we know about learning? Second, what do we know about the learner?

What Do We Know About Learning?

Although no scientific principles can be established permanently regarding learning, psychologists generally agree on a number of assumptions which have become important to education. It is generally believed that a person learns best if certain factors are considered.

The real needs of the learner may be the most important of all the psychological implications involved with education. Learners progress in an area of learning only as far as is necessary in order to achieve their goals, providing they have set realistic goals for themselves. Genuine participation greatly increases the motivation, amount, and speed of learning.

If the learner's needs are in the area of preparation for a job, then the learner has needs individual to himself/herself. Instruction can be tailored to fit the exact needs for the particular job he has in mind.

The same is true if the needs are in the area of retraining. The person who has lost a job due to obsolescence of occupation has a particular need somewhat different from that of a learner who has never been in the work force at all. They may need to learn an entirely different occupation or upgrade themselves to keep up with progress and maintain employment in their present occupations. Discoveries in technology and mechanization are being made at a rate more rapid today than ever before. Individual needs in education increase as job losses due to advancing technology and mechanization increase. If a need is felt, the learner will genuinely participate in the learning.

The disabled and handicapped are a group with special individual needs, too. The development of an educational system tailored to meet the needs of the individual in this group has been mandated by law. It may be necessary to help an individual overcome an educational handicap by building a special instructional program which takes the particular needs into consideration.

The _self confidence_ of the individual may have a great effect on the learning process. Students who have experienced much criticism, failure and discouragement in school have little self-confidence, and their level of aspiration is lowered by a damaged sense of worth. Persons who see themselves at this worst in school are likely to avoid studies and seek experience outside the classroom. Their resentment of teachers, books, and school may be due to frustrations and lack of self-confidence.

Readiness for any learning is a combination in the student of certain factors such as physiological and psychological maturity, realization by the learner of the importance of learning the material, a level of prerequisite achievement necessary to assure success along with a sense of self-confidence, and good feelings of self worth. They are a complex combination and must be considered individually in each learning situation if the maximum efficiency is to be gained from educational efforts.

There must be a climate free from discouragement and threat of failure for the student to reach a level of readiness. This kind of climate is best achieved when the individual needs of the student are considered and the learner is analyzed.

A major consideration in learning is proper motivation. Motivation is affected by and an effect of various factors, including stimulating experiences, challenges, and rewards.

Opportunity for fresh, novel, and stimulating experiences is a kind of reward which is effective in conditioning and learning. The person receiving a sense of satisfaction from achievement is experiencing an intrinsic reward which has transfer value to other life situations. If they have experienced satisfactory achievement in one area, they may be more likely to expect satisfaction in other areas. It appears to have a cumulative transfer effect. The student who has had unsatisfactory, negative experiences in education and is turned off to anything connected with school may experience some degree of attitude change following satisfactory, positive experiences. Individualizing materials to fit this student's learning preferences and abilities may produce the needed positive learning experiences.

Some students respond to challenges. The student who is utterly and thoroughly bored with "the same old thing" in "the same old way" may never have been challenged adequately. Puzzles, difficult problems, or obstacles cause students to think, and thinking may involve finding solutions to problems. The student may become concerned and eager to remove obstacles if they are put there as learning situations.

Extrinsic rewards--such as commendations, grades, stars on a chart, or payment of any kind--depend on the dispenser. There is little need to strive if the reward giver is not present; however, extrinsic rewards do have motivational effects, and the result can be positive learning experiences which may be beneficial to some students. Cheating can sometimes win the extrinsic reward, but since the internal reward system is always present for the learners, they may see little gain in fooling themselves. Extrinsic rewards then will have little motivational effect and may cause the student to lose the self-satisfaction that is the most important factor in motivation.

When considering learning, certain factors regarding retention must be emphasized. Studies have determined that forgetting proceeds rapidly at first, then gradually more slowly. Exercising recall shortly after learning increases the amount retained in memory. For example, within twenty-four hours after studying for a test, a large part is forgotten if for some reason the student does not take the test or make an intentional effort to recall the material studied. If the test is postponed, the material must be restudied. What has been forgotten then can be relearned more quickly than it was originally, and if it is reviewed several times at gradually increasing intervals, it can be retained for quite some time.

Learning from reading is enhanced more by time spent recalling what has been read than by rereading. Jotting down notes about materials that one is reading and then reviewing the notes to recall what has been read is a more effective method of aiding retention than rereading all the printed words. They may be an excellent recommendation for a slow reader.

In one experiment, students who spent eightly percent of their learning periods trying to remember what they had read surpassed those who spent only sixty percent of the time on recollection. Students who spent all the time reading and rereading the assignment did poorer.

New information which agrees with or confirms previous attitudes or beliefs is remembered better than new information which is counter to previous beliefs. The subconscious mind seems to have the ability to reject ideas that are in disagreement with what is already well established. Studies show that individuals who feel strongly on a controversial subject and who are asked to read presentations of both sides remember the facts and arguments which support their feelings better than they recall those of the opposite side.

Motivation is best and recall greatest if learning can be useful. If what is learned can be learned in a situation much like that in which it is to be used and immediately preceding the time when it is needed, it is more likely to be available for use upon recall. The learning process is very inefficient if one learns, then forgets because of no necessity for recall, then later relearns when the need arises. Much that is taught to children might be more effective if it were taught to responsible adults.

Learning or retention is greatly affected by positive reinforcement of behavior or rewards. The behavior which has been rewarded or reinforced is most likely to be repeated and is that which was successful or satisfying previously in a similar situation. The best learning situations are those which provide a steady growth of successful behaviors.

Rewards, to be most effective, must follow almost immediately after the desired behavior and must be clearly connected with that behavior in the mind of the learner. The simple word "right" or a positive nod of the head coming directly after a given response, will have more influence on learning than any big reward which comes so much later that it is dimly connected.

Much of the effectiveness of individualized instruction lies in the fact that information about success is fed back immediately for each learning situation or module. A total score on a test fed back days after the test is administered has little or no reinforcement value if the student does not get information on specific answers to specific questions.

Repetition without feedback as to improvement on any kind of reward is an ineffective, inefficient way to learn. Practice is not enough. Improvement will not happen unless the learner is informed whether or not each effort or a series of efforts has been successful.

Negative reinforcements have variable and uncertain effects upon learning. Punishment may make the response less likely to recur, but it may also have the opposite effect of making the response more likely to recur. Punishment is not the reverse of reward and may set up avoidance tendencies which prevent further learning of more than just that response which was negatively rewarded.

Punishment disturbs the relationship of the learner to the situation and the teacher and does not assist the learner in finding and fixing the correct response; rather, it only gives a negative reward to a given response.

What Do We Know About the Learner?

When considering a particular group of students in regard to the subject matter one wishes them to learn, there are certain characteristics of the individual learner which are important.

It would first be wise to know the student's current level of knowledge, attitudes, and skills in the subject matter area. Someone wishing to become a Licensed Practical Nurse and who has acquired an aide level understanding and mastery of fundamental skills in nursing will need emphasis on other more advanced areas and only reinforcement of previously learning material. Someone with no knowledge and skills in nursing will need to begin at the very beginning. It is unfair to both students to begin at the wrong place and either repeat or begin in advance of their acquired knowledge and skills.

Pre-testing of all kinds is done frequently at all levels of learning and in all areas of learning to determine where students should be placed to begin or continue their education. Some programs make use of teacher made tests and others use standardized evaluations. Most colleges and universities administer pre-entrance tests and use ACT and SCAT scores to determine how the entering students can best be placed in learning situations which will give a positive, successful experience rather than a negative, unsuccessful one. Various vocational and technical schools and programs will make use of the ACT, the Nelson-Denny reading test, the GATB and various standardized tests of a very specific nature to get information about appropriateness and readiness of that individual for that specific program (Britt, 1971).

Much is learned by experience, and it is difficult to qualify what one learns from experience in relation to what one learns in the formal setting. Many students and especially the more mature and experienced learners bring a great wealth of knowledge in past experiences. It is necessary to evaluate the knowledge they bring in order to determine both the quality and quantity. Much information learned strictly by experience is either inadequate, inefficient or wrong. More background knowledge may be necessary to give the student a basis by problem solving, there may be a quicker, easier method of performing a task. They may have learned it wrong to begin with and need to unlearn bad habits and relearn good ones. Teacher made practical exams may be a good method of determining this.

The second characteristic of importance is the attitude of the learner. The teacher should be able to discover the students' attitude toward school in general by personal interviews, attendance records, talking to other instructors, and/or inquiring of those people given as references if such is the case. The time and methods of inquiry an instructor is able to use determining the learner's attitude toward school and the instructional content may depend on how much individual attention the instructor can give each student.

The individual content areas can be outlined and the student's past grades in those areas noted. Low scores in a specific area may indicate negative experiences in that area. Scores on pre-entrance exams which cover the content areas can be used as indicators of positive or negative past experiences and predictors of future experiences. Those areas where negative experiences are indicated are areas where the individual would benefit from individualized instruction which would be more likely to produce positive learning experiences.

In recent years there has been much discussion about the cognitive styles of learners. The learner's cognitive style is an individual thing and is rooted in the personality. The way we perceive, validate, and store information is our own cognitive style and may differ from that of other individuals. The type of reasoning individuals use--whether they consistently use deductive or inductive methods of reasoning--and the amount and kinds of influence they allow others to play on their behavior are all part of their cognitive style.

Within the cognitive style each individual has a learning style which is explained as being the behavioral perferences or manifestations of the total cognitive style. Each of us has preferred learning conditions in which we learn best, preferred methods of learning, preferred content, and different academic expectations. How well individuals learn, according to this theory, is dependent on whether they prefer a close or distant teacher, a structured classroom or independent learning situation, or close or distant cooperation among classmates. Whether or not their preferences are met may determine whether or not they may be able to take advantage of their particular learning style.

Means of determining learning styles have been developed and the individual's learning inventory is "mapped." One means, The Learning Styles Inventory, is a test developed by Albert A. Canfield and J. Clayton Lafferty which profiles the learner into the various categories of learning conditions, content, mode of learning, and expectancy.

The amount and kinds of tests done to determine the individual differences of the student could vary from being practically nonexistent on one hand to being so numerous and so time-consuming and expensive on the other hand as to be impractical and improbable to use. The use will depend on the school, the instructor, and the student.

Learners have been divided into three learning types in one research study conducted at the University of Cambridge (Britt, 1971). They are divided according to their distinctive patterns of responses in objective test batteries and instructional tasks. Since it is questionable practice economically to design one program on each topic with the hope that it fits the needs of all who take it and equally questionable to design separate programs for each and every individual, it is hoped that the most economical solution can be reached by fitting the needs of large groups of individuals classified by learner types.

The three learner types are N, O, and X. Examples of information believed true for one learner type is as follows. Programs designed for learner type N must have certain characteristics that provide security for that type learner. Below are specific characteristics.

1. Quiet working conditions are not required.
2. Rapid pacing of material is necessary.
3. Statements will be made by this type for the fun of the confusion they can cause.
4. Instructional program should be written to reduce its emotional impact.
5. Incentives should include a strong sense of personal accomplishment and contribution to society.

6. Situation should include social and conversational groups that are not argumentative.

7. Material may be taught in several ways--deductively and inductively--with special programming procedures to prevent the learner from making errors when following instructions.

There is more specific information for all learner types which may be helpful in designing programs of instruction. Individualized material could be built around the three learner types with the hope of planning for the maximum number of students possible.

The language level already attained by the students is of prime importance. If there is specialized terminology in the program it is necessary to have acquired some knowledge of the terminology or determine whether students can master the materials at their present language level. Having a positive learning experience may very well depend on the language level of the student. ACT, SCAT, and Nelson-Denny scores, along with teacher made tests, will reflect the attainment of the student in this area. Remedial material or special instructional material can then be planned if necessary to bring the student up to a predetermined level.

The tool skills of the student are another important consideration in determining the characteristics of the students. If the student has a sensory-perceptual deficiency, it could be a safety hazard for the student and others working around the student. It could also interfere with the student's ability to handle instructional materials and equipment and must be predetermined. If the student cannot handle the equipment to be used for presentation of the individualized materials, it will be of no benefit to prepare the material in that manner and other methods must be considered. The GATB and other tests to determine manipulative skill abilities can be used as an indicator of this kind of problem. More specialized testing can

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be done but usually only on an individual basis and in a more clinically specialized setting.

Summary

In an analysis of learners there are two main areas to consider that information psychologists know about learning and which we can discover about the individual learner in question.

There are many principles about learning which educators believe to be true, and some of the most important are listed below. Persons learn best if:

1. their needs are considered,
2. they have self-confidence,
3. they have sufficient levels of readiness,
4. they have proper motivation.

Retention is affected by:

1. type of reading done,
2. new information presented,
3. application of learning,
4. reinforced behavior.

What we know about the individual learner is important in the preparation of materials. The following are items which should be considered.

1. Students' subject matter competencies
2. Student attitudes in general and toward instruction and school
3. Language levels already acquired by the student and special language necessary
4. Tool skills necessary for the student to master instructional material

There are many means of determining the characteristics of the student. The amount and kinds of testing will be determined by the school, instructor, and student.

Based on the knowledge one has about learning and what the teacher is able to determine about the learner, the teacher will be able to choose the best type of individualization for the student involved. There are many variables to be considered, including the language level of the student, the type of individualization which will suit the learner's style best, the numbers and types of learning activities available, and the types of media used. It is also necessary to consider the amount and kinds of feedback from which instructor and student will receive the most benefit, the types of evaluation procedures needed, and how often it is necessary to evaluate. All these considerations will truly tailor instruction to the individual learner.

Even though the learning styles of the individual students may vary, the attitudes, knowledge, and skills required of the student to master the competencies and tasks required for the course or job will not. Individual students may use varying learning activities based on their personal characteristics, but they all will be expected to reach a specified performance level. The next section of this manual will discuss procedures used to determinte what the student is to study and learn in a particular module. First, the instructor must decide what skills, knowledge, and attitudes the student is to acquire.

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Section IV

IDENTIFYING STUDENT COMPETENCIES

One of the major problems faced by new curriculum writers is determining what they should include and emphasize in their lesson or module. A teacher may do an excellent job of training students to replace the tubes in a radio, but the students will not find a job easily because radios today use transistors and printed circuits instead of tubes. The importance of proper task and competency identification cannot be overemphasized, for all other aspects of curriculum development relate back to and build on this basic starting point.

Tasks and competencies relative to skills and duties of individuals while on a job serve as a natural focal point around which to build an instructional program. Objectives and content items are then derived from and grouped around what workers do while performing these tasks and competencies.

Job Descriptions

The job description becomes the means for specifying what the training program is designed to prepare individuals to do. It limits the broader area into a specific program directed at a specific group of students. There are many job descriptions available from sources such as the Dictionary of Occupational Titles. The following sample job description first describes what the worker does, followed by other related information such as working hours and wages.

FIGURE 2

SAMPLE JOB DESCRIPTION
BEGINNING LICENSED COSMETOLOGIST (ENTRY LEVEL)

Provides beauty services for customers according to physical features of patron, current styles, or according to instructions of patron and management personnel.

Styles hair by cutting, trimming, and tapering by using clippers, scissors, razors or by quick service techniques.

Shampoos hair and scalp. Applies rinses, permanent tints, and performs bleaching techniques. Sets hair, straightens hair, removes superfluous hair, arches and dyes eyebrows and eyelashes, and treats dandruff conditions. Styles, cuts, colors and cleans wigs. Applies scalp treatments and massage techniques. Selects and applies cosmetics, gives facials, manicures nails, and pedicures nails.

Takes appointments, maintains business records, merchandises products and helps maintain public relations and clean shop environment.

Working hours primarily during the daylight hours according to appointment and management schedules.

Wages are based upon a performance percentage as established by management.

The cosmetologist may need to stand for extended periods of time, and it is essential to maintain acceptable personal grooming schedules as well as public relations.

Steps for Developing a List of Tasks or Competencies

Step 1 - List competencies or tasks - Prepare a "laundry list" of those tasks or competencies a student needs for entry level in an occupation. For academic courses this list would be those competencies a student would need to successfully complete a particular course.

A task is defined as a skill or duty required of a competent worker while performing a job or occupying a position.

Competencies are defined as the skills, attitudes, and knowledge needed by a person to perform a given function efficiently and effectively.

We will assume that these two terms are nearly synonymous, as one cannot perform the skill part of a task without some basic knowledge and the proper attitude. In academic subjects, the competency may not have a true psychomotor skill component. Study the following sample task list in cosmetology. Most competency or task lists will contain from 30 to 50 items for a course or program. A list for a specific course may contain less than this number, while the number for a two-year associate degree program might be longer.

FIGURE 3

SAMPLE TASKS REQUIRED OF BEGINNING LICENSED COSMETOLOGIST

Razor cut hair
Set hair
Remove superfluous hair
Straighten hair
Perform bleaching techniques
Scissor cut hair
Pedicure nails
Give facials
Taper hair
Apply rinses
Manicure nails
Select and apply cosmetics
Sell products and services
Clean and maintain shop environment
Maintain public relations
Take appointments
Analyze hair

Shingle hair
Use quick service styling techniques
Maintain business records
Apply massage techniques
Prepare advertising
Maintain personal grooming
Shampoo hair
Permanent wave hair
Apply permanent tints
Treat dandruff conditions
Arch and dye eyebrows and eyelashes
Style, cut, color and clean wigs
Apply scalp treatments
Merchandise products
Maintain and care for laundry items
Care for and maintain capes and caps

Besides a job description, the instructor may use a number of other sources in building this task or competency list:

*Their technical expertise

*Advisory committees

*Task analyses by others

*Research reports by local, state, or national organizations

*Management and labor organizations

*Interviews of workers and supervisors

*Accreditation or professional associations

*Textbooks

*Curriculum guides

*Other instructors

Step 2 - Arrange in prerequisite order

FIGURE 4

SAMPLE TASK ANALYSIS
BEGINNING LICENSED COSMETOLOGIST
IN PREREQUISITE ORDER

1. Clean and maintain shop environment
2. Maintain and care for laundry items
3. Care for and maintain capes caps
4. Maintain personal grooming
5. Maintain public relations
6. Take appointments
7. Maintain business records
8. Scissor cut hair
9. Razor cut hair
10. Taper hair
11. Shingle hair
12. Shampoo hair
13. Treat dandruff conditions
14. Set hair
15. Use quick service styling techniques
16. Analyze hair
17. Apply rinses
18. Perform bleaching techniques
19. Apply permanent tints
20. Apply scalp treatments
21. Permanent wave hair
22. Straighten hair
23. Give facials
24. Remove superfluous hair
25. Arch and dye eyebrows and eyelashes
26. Apply massage techniques
27. Select and apply cosmetics
28. Manicure nails
29. Pedicure nails
30. Style, cut, color and clean wigs
31. Merchandise products
32. Sell products and services
33. Prepare advertising

Step 3 - Group into major units - To make your content more manageable, you may next want to group your competencies or tasks into units of instruction. Those competencies or tasks that seem to go together or relate to each other would be grouped into the same unit. Some of these units may serve as "minicourses" which can be taught in a seminar setting or be offered as a "one" credit class.

FIGURE 5

SAMPLE TASK ANALYSIS
BEGINNING LICENSED COSMETOLOGIST
IN MAJOR UNITS

Orientation

1. Clean and maintain shop environment
2. Maintain and care for laundry items
3. Care for and maintain capes and caps

Professional Behavior Development

4. Maintain personal grooming
5. Maintain public relations
6. Take appointments
7. Maintain business records

Hair Cutting

8. Scissor cut hair
9. Razor cut hair
10. Taper hair
11. Shingle hair

Shampooing

12. Shampoo hair

13. Treat dandruff conditions

Quick Service Styling

14. Set hair

15. Use quick service styling techniques

Hair Coloring

16. Analyze hair

17. Apply rinses

18. Perform bleaching techniques

19. Apply permanent tints

Permanent Waving

20. Apply scalp treatments

21. Permanent wave hair

22. Straighten hair

Facials

23. Give facials

24. Remove superfluous hair

25. Arch and dye eyebrows and eyelashes

26. Apply massage techniques

27. Select and apply cosmetics

Manicuring

28. Manicure nails

29. Pedicure nails

Wigs

30. Style, cut, color and clean wigs

Management

31. Merchandise products
32. Sell products and services
33. Prepare advertising

Step 4 - Prepare an instructional analysis for each task or competency - Often a module in competency-based individualized instruction will be developed around a task or competency. The module title is then developed from the task or competency statement.

A module is a portion of a course or program of study that seems to fit together. It is hard to state a "recommended length" for a module because of the variation in subject matter within a course or program and from one program to another. A student may be able to complete a module in one class period, or it may take as long as a week to complete the activities and master the task or competency.

Once instructors have identified the module title, they will still need to perform an instructional analysis to determine the specific skills, attitudes, or technical information required of the student in order to perform the task or competencies successfully. Divide a page into halves. Label the halves as shown on the following page.

FIGURE 6

Course:	ANALYSIS OF COSMETOLOGY
Unit:	Shampooing
Task:	Shampoo Hair

SKILLS: What The Student Must Be Able To Do	RELATED INFORMATION: What The Student Must Know
Prepare the patron for a shampoo	Selection of shampoos
Give a shampoo	Types and kinds of shampoo
Test the pH of a shampoo	Purposes of shampooing hair
	Safety when giving shampoos

Step 5 - Arrange in Prerequisite Order - After the instructors have identified and listed the various skills and information topics, they should next arrange them in a prerequisite sequence as to how they would teach them in the classroom. What skill should be taught first? What related information will the student need to know to perform that skill? They may wish to number these in prerequisite order as shown in the example on the following page. (If this were taught in a traditional classroom setting, each skill would become a demonstration lesson and the related information would be used in an informational type lesson.)

FIGURE 7

Course: ANALYSIS OF COSMETOLOGY

Unit: Shampooing

Task: Shampoo Hair

SKILLS: What The Student Must Be Able To Do	RELATED INFORMATION: What The Student Must Know
	1. Purposes of shampooing hair
	2. Types and kinds of shampoos
3. Test the pH of a shampoo	
	4. Selection of shampoos
	5. Safety when giving shampoos
6. Prepare the patron for a shampoo	
7. Give a shampoo	

This order can then serve as the framework for organizing the individualized module with information sheets, activities, and checkpoints developed around these topics.

The final decision an instructor needs to make concerns whether or not this is too much material for one module. They should ask themselves the following questions:

1. Does the instructional analysis cover the task or competency? Is it complete in itself or is more information needed?
2. Does it present too many skills or information topics (concepts/principles)? Would it be less confusing to the student if this module were broken into two smaller ones?
3. Can it be easily grasped by the student? If the module is too long, the learner may become discouraged. The student must be able to keep the module objectives in mind as they develop the skills and learn the concepts.

The ultimate test must be how well the students do on the module. If too many fail the post-test, the instructor may need to redesign the modules and divide it into two shorter modules, or alter the learning activities.

After these two types of analysis have been completed, the instructor identifies the content areas to be included in the modules and is now ready to develop objectives. These objectives will specify what is to be learned or what skills are to be performed. Types of objectives and their development will be discussed in the next section of this manual.

Section V

DEVELOPING STUDENT OBJECTIVES

The content analysis performed according to the previous section of this manual identifies for the instructor the skills, knowledge, and attitude that the student must have in order to complete the stated task or competency. The instructor then uses objectives developed from this analysis to let the students know what is expected of them. This section will discuss the importance of objectives and present guidelines to follow when establishing module objectives.

Planning and Objectives

Clearly defined and stated objectives are an integral step in a well planned instructional program. A good place to begin when developing objectives is to review course objectives as stated in the syllabus or to start with the tasks as determined by a content analysis. A complete set of good objectives can be a great help in planning instructional activities. The advantages of objectives are given below.

1. The use of objectives helps the instructor to decide exactly what the student is to learn.
2. Well written objectives help students to clearly set their goals and to prepare for exams.
3. The instructor can develop student learning activities that will enable the student to reach these objectives.
4. The instructor will find objectives an aid in the evaluation of instruction.
5. Worthwhile objectives will make construction of tests easier.

Writing Objectives

Objectives are specific statements of skills, knowledge, or attitudes that students are expected to achieve. A performance objective is stated in terms of what the learner is to do--NOT what the instructor is to do.

A characteristic of performance objectives is the use of an action verb to describe instructional activities such as writing, saying, listing, finding, analyzing, solving, building, etc. The conditions under which the student is expected to operate may need to be clearly stated if they are not obvious. The acceptable standard of performance or quality should be stated.

Identifying Objectives

Objectives as mentioned earlier should be developed from those tasks or competencies identified in the analysis of the subject area. In the development of an individualized module, there are two levels of objectives used.

Terminal objectives: Describe the performance required of the student in order to complete a task or competency.

Enabling objectives: Describe a specific attitude, knowledge, or skill which the student is to master to achieve the terminal objective.

Terminal objectives are more general than enabling objectives. To successfully meet a terminal objective, the student must be able to meet all of the enabling objectives. A discussion of each of these types of objectives follows.

Terminal Objectives

Terminal objectives are developed from the task statement for the module. For example, one task identified in an Applied Electricity course was "use common electrical meters." The module title could become USE OF COMMON ELECTRICAL METERS. The terminal objective could then read:

> Explain the application and safety practices and precautions for using the common electrical meters.

The instructor can also expand this terminal objective for the "scope of unit statement" or for the module introduction. This terminal objective could also be considered as one of the course objectives.

Enabling Objectives

The enabling objectives would be developed from the instructional analysis. The instructional analysis for the previous task is given below.

FIGURE 8

UNIT: FUNDAMENTALS OF ELECTRICITY

TASK: Use of Common Electrical Meters

SKILLS: What the Student Must be Able to Do	RELATED INFORMATION: What the Student Must Know
	1. Application of the precautions to observe with ammeters
2. Connect and read an ammeter	
	3. Application of the precautions to observe with voltmeters
4. Connect and read a voltmeter	

Enabling objectives will then be developed from the skill and knowledge components of this analysis. For the first skill listed, the instructor may wish to develop two enabling objectives such as these:

1. Given an ammeter, the student must be able to connect it correctly into a circuit without harming the ammeter.
2. Provided an ammeter, the student must be able to read to the nearest multi-ammeter an ammeter that is correctly connected in a circuit.

Usually there will be three to seven enabling objectives for each module. If there are many more than this, the module is probably too long, or the enabling objectives measure steps in a process instead of skills or deal with minute facts instead of informational topics.

Enabling objectives should measure all three domains.

1. Cognitive domain - knowledge
2. Psychomotor domain - skills
3. Affective domain - attitudes

Often there will be a sequence in which the students must meet these enabling objectives. They may be required to become proficient at the first enabling objective before they can start the second. A learning activity will often relate directly to a specific enabling objective. When the students can master all enabling objectives, they should then be able to master the terminal objective.

Components of Performance Objectives

Often each enabling objective is written as a performance objective. It states the condition under which the student is expected to operate; the actual performance that is expected of the student; and the acceptable level of performance.

For example, the components of the enabling objective given earlier are as follows:

The condition: Given an ammeter
The performance: Connect it correctly into a circuit
The criterion: Without harming the ammeter

Additional sample performance objectives are given here for the three domains.

1. Cognitive Domain

    a. Without the aid of reference materials, the student will identify by name ten commonly used tools with 90 percent accuracy.

    b. Given a medical chart describing a patient's condition in medical terminology, the student will verbally describe the patient's condition. Acceptable performance is based on 90 percent accuracy.

c. Given a list of types of lumber, the student will select the appropriate materials for use as outdoor stairs. Acceptable performance is based on 80 percent accuracy.

d. Without the aid of reference materials, the student will describe the relationship among the major components of the automobile electrical system. Acceptable performance is based on 80 percent accuracy.

e. Given a structural steel problem, the student will completely plan the solution, including materials to be used, type of welds and procedures to be followed. Acceptable performance will be judged according to completeness and logical operating procedures.

f. Given two solutions to a dental problem, the student will select the most appropriate solution after describing both the strengths and weaknesses of each solution. Acceptable performance is based upon the proper selection and the supporting of the strengths and weaknesses.

2. Affective Domain

a. In a classroom situation, the student will develop an awareness of other students' feelings.

b. In relations with other people, the student will take pleasure in conversing verbally.

c. Within a laboratory situation, the student will assume responsibility for helping other students develop safety consciousness.

d. In relations with other people, the student will weigh the values of others before forming opinions.

e. Each student will develop a philosophy of life consistent with societal norms.

3. Psychomotor Domain

a. Using the IBM Selectric typewriter, the student will type a three-page manuscript with no more than five errors.

b. Given ten soil samples, the student, utilizing the field method, will correctly identify the soil class for nine of the ten samples.

c. Using a tachometer, the student will set the engine idle speed within 50 RPM of the manufacturer's recommendations.

d. Provided two 3 x 8 x 1/8 inch metal plates, the student will select an appropriate electrode, adjust the welding machine, and butt weld the plates as judged satisfactory by the instructor.

In modules developed at State Fair Community College, enabling objectives are often not written as complete performance objectives. The conditions or the criterion may be abbreviated if they are clearly evident to the student by the nature of the original task. They should reflect the particular needs of the education program.

Classification of Objectives

Many listings, levels, or categories of objectives are considered acceptable, and books of objectives on various subjects are widely available for purchase. Most classifications of objectives are modifications of the original work of Bloom and his group. Following is a list of key words that may be used in writing objectives. They are listed according to the domain.

These locations of verbs are not absolute--a particular verb may be appropriate to several areas of classification depending on its actual use.

KEY WORDS FOR WRITING OBJECTIVES

The following key words should prove helpful for developing lesson objectives. This list is not to be considered all-inclusive but rather as a collection of usuable key words.

Cognitive Domain:

KNOWLEDGE

define
memorize
repeat
record
list
recall
name
relate

COMPREHENSION

restate
discuss
describe
recognize
explain
express
identify
locate
report
review
tell

APPLICATION

translate
interpret
apply
employ
use
demonstrate
dramatize
practice
illustrate
operate
schedule
shop
sketch

ANALYSIS

distinguish
analyze
differentiate
appraise
calculate
experiment
test
compare
contrast
criticize
diagram
inspect
debate
inventory
question
relate
solve
examine

SYNTHESIS

compose
plan
propose
design
formulate
arrange
assemble
collect
construct
create
design
set up
organize
manage
prepare

EVALUATION

judge
appraise
evaluate
rate
compare
value
revise
score
select
choose
assess
estimate
measure
inspect

Affective Domain:

accept
advocate
allow
assist
brace
concur
correspond
dedicate
deserve
develop
enhance
enrich
express
follow
imply
incite
invigorate
kindle
perceive
ratify
stimulate
urge

admit
antimate
aspire
attain
belong
coach
commend
compliment
concern
confer
congratulate
content
engage
enjoin
enjoy
enlighten
enliven
excel
exhibit
flatter
fulfill
gladden

impart
impel
induce
magnify
motivate
oblige
reinforce
seek
surmount
surpass
uphold

Psychomotor Domain:

anchor
assort
build
carry
climb
convert
demonstrate
enlarge
execute
fabricate
fill
finish
fix
generate
grind
heave
inscribe
intersect
juggle
manipulate
operate
perform
rebuild
recast
remodel
transfer
transpose

advance
converse
enter
equip
furnish
gather
inspect
make
observe
practice
proceed
straighten
vary
work

Checklist for Evaluating Performance Objectives

After objectives have been developed, they may be evaluated according to this checklist:

1. Characteristics of the set of objectives:

   A. Complete

   Is the set of objectives sufficient to insure the terminal objective desired?

   B. Essential

   Is each objective of the set necessary to reach the goal?

   C. Nonrepetition

   Is the set free from the unnecessary repetition caused by two objectives meaning the same thing?

   D. In Prerequisite Order

   Is the set of objectives arranged in good logical, prerequisite sequence rather than random order?

2. Objective checks:

   A. Concise

   Is each objective stated in the most concise, efficient manner? Are appropriate action verbs used?

   B. Level

   Does the objective reflect the correct level and type of learning desired?

   C. Learning Tasks

   Does the set of objectives represent the best breakdown of the goal into learning steps for the particular task and the learners involved?

   D. Performance

   Does the performance objective describe what learners will be doing to demonstrate that they have attained the objective?

   E. Condition

   Does the performance objective specify the important conditions under which learners must demonstrate their competence?

F. Criterion

Does the performance objective describe the criteria by which the learner's performance proficiency can be judged?

G. Learning Aids

Do the objectives provide appropriate information on reference materials, models, equipment, hand tools, and resource people for the learning task?

After identifying the subject matter content to be included in the module and developing objectives, the rest of the module may be completed. The next section describes a useable format and gives suggestions on organizing the content. Section VII develops learning activities to help students meet objectives.

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Section VI

FORMAT AND CONTENT ORGANIZATION

Introduction

Section IV describes how a program or course is broken down into informational or skill topics based on competencies the students are to master. These topics then serve as module titles. A module is an independent subsection of a course or program.

In this section, a module will be considered from a different point of view. A module can be described as a method of packaging or organizing instructional materials. It consists of a number of basic components. These components are found in most individualized instruction packets; however, the titles or arrangements may be different. The format described is suggested for modules developed at State Fair Community College, especially if they will be marketed through the Media Center.

Components of a Module

The student manual includes:

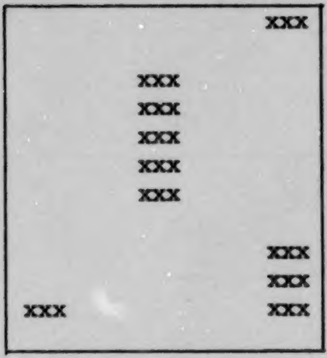
a. Title page
b. Introduction
c. Objectives
d. Procedures (study guide)
e. Information sheets
f. Learning activities

THE STUDENT MANUAL

Title page. The first page of the student manual should be the title or cover page. In the upper right hand corner of this title page is a reference code. For example, W77-106 means that this is welding module number 6, developed in 1977. Revised modules will have a "R" following this code designation such as HO77-206R.

Subject Matter Symbols

AG = Agribusiness
S = Soils
W = Welding
HO = Health Occupations
B&O = Business & Office Occupations
PEP = Preemployment Preparation



The module title is indicated in the lower center of the page. If this module is a part of a larger unit, this unit will also be indicated. The Media Center and State Fair Community College identifications are placed in the upper center of the title page.

Space is provided for the student's name in the lower left corner of the title page. The student or instructor can also indicate the date the student started and completed the module. The following page provides an example of a correctly prepared title page.

W77-106

MEDIA CENTER
STATE FAIR COMMUNITY COLLEGE
1900 Clarendon Road
Sedalia, Missouri 65301

WELDING

106 Basic Welding Joint Construction

Date Started______________________

Student______________________________ Date Completed____________________

Approved__________________________

Introduction. The introduction tells the student what the module is about. It stresses the importance of the lesson and should motivate the student to become involved in the learning activities. Interest in the lesson is often related to the first few paragraphs. The introduction should answer the following questions:

a. What is the lesson about?
b. Why are we studying this?
c. When will I use this material?
d. Where will I use this material?
e. How will this lesson benefit me?

Study the following examples. Do they answer the five questions above?

FIGURE 9

The patient unit has a variety of auxillary equipment that can be used in the care of the patient. This equipment is essential in the care of the patient and for that reason the operation of the equipment is essential. One word of caution: watch out for the villains which cause pinched fingers, smashed toes, scraped knees, and falling objects. To learn more about how to stay away from these villains, let's see how the overbed table, light, call light, side rails, and IV poles can be most efficiently operated.

Reading is an important part of communication and is perhaps the most important communication tool you will use in furthering your education and your career. Through reading you can absorb information, be exposed to ideas, and provide yourself with relaxation and entertainment. In this module you will learn the importance of reading, and how you can improve your reading; furthermore, you will be given an opportunity to gain a basic medical vocabulary, which is highly important in your health occupation career.

A properly welded joint will be as strong as the original metal. This requires the proper electrode, machine setting, and welding procedures. The square groove butt joint and the lap joint are the two basic joints that are the easiest for the beginning welding student to master. In this lesson you will study the uses and construction of these two joints. In the welding lab you will practice running these beads until you can satisfactorily pass the welding post-test.

Objectives. The objectives are listed at the bottom of the second page. Objectives explain to students what they are expected to learn or what skills they are to perform. Action verbs must be used to make the objectives measurable. There should be one terminal objective telling students what they are expected to accomplish upon completion of the module. Enabling objectives, generally three to seven in number, describe more specific behavior students must master before they can meet the terminal objective. For this reason, enabling objectives must be placed in a prerequisite learning sequence.

Study the following examples for format. For a more complete description of writing objectives, refer to Section V.

Welding Example

Upon completion of this module the student should be able to:

1. Identify the three types of butt welds and their characteristics.
2. Recommend when each type of butt weld should be used.
3. Set up and run each type of butt weld using materials assigned by the instructor.

Health Occupations Example

The student should be able to:

1. List and define the three principles that guide nursing action.
2. List four examples of each principle and tell how the nurse can maintain these principles.

Business and Office Example

Upon completion of this module, the student will be able to:

1. Explain or demonstrate the procedure for making corrections with the correcting selectric typewriter.
2. Make neat corrections using liquid correction products in bottle and pen containers.
3. Make neat corrections using correction paper and film.

Procedures or Study Guide. The procedure sheet can be compared to a road map. It gives directions or tells students how to get to their final destination--the mastery of the objectives. Like a road map, there are alternate or optional ways by which students can arrive at their destination.

The instructor must first identify all learning activities. These will cover a wide range of experiences, including learning information provided in the module or a textbook, viewing a video or slide presentation, participating in classroom discussions, and performing actual skills in a lab or work situation.

The instructor must next organize these learning activities into a sequence. From experience, they can determine those activities and the logical order in which they will enable students to complete the lesson.

Next, the instructor should review this sequence of activities. Are there places where an internal checkpoint is needed to measure student learning before proceeding to the next step? Should optional activities be included for:

1. students who have trouble comprehending the materials?
2. students who would like more information?
3. students with different learning styles?

Are guidelines provided so that students know they are proceeding at a rate which will enable completion of the course in a semester? Are provisions made for testing out by competent students, or for advanced placement of students who already have some of the competencies required by the module.

Study the following examples for ideas on organizing learning procedures or study guides.

Example in Business and Office Occupations. Module No. 27, "Correcting Products other than Erasers"

Procedures

1. Obtain Slide/Tape Presentation No. 27 and view the slides as you listen to the correlated cassette tape. Take notes as you listen to and view the presentation.
2. Obtain from your instructor a sample of each type of correction product presented in this module.
3. Practice making corrections using each product until you are pleased with your corrections. Use Handout No. 1 for this practice.
4. Present the completed Handout No. 1 to your instructor for evaluation.
5. Complete Handout No. 2 and present it to your instructor for evaluation.
6. Review Objectives 1 through 6 and be ready to explain or demonstrate the techniques you have learned at checkpoint.
7. Ask your instructor for a checkpoint.

Example in Welding. Module W77-107, "Shielded Metal Arc Welding Electrodes"

Procedures

1. Read the objectives and introduction to this module.
2. If you think you can pass a written examination over electrode types, characteristics, classification systems, and factors that determine selection of a particular electrode type with 90 percent accuracy, ask your instructor for a pretest.
3. If you do not take the pretest or if you are unable to pass the pretest with at least 90 percent accuracy, continue with the next procedure.
4. Study the information sheets that are part of this learning packet.
5. Observe and listen to Slide/Tape Presentation W77-107, "Shielded Metal Arc Electrodes."
6. Additional information about electrodes can be obtained by referring to the following resources.
   a. Sacks, Raymond J., Welding Principles and Practices. Charles A. Bennett Co., Inc., 1976, pp. 195-226.
   b. Althouse/Bowditch/Turnquist, Modern Welding. Goodheart Wilcox, Co., Inc., 1970, pp. 6-18 to 6-26.
   c. Giachino/Weeks/Brune, Welding Skills and Practices. American Technical Society, 1971, pp. 49-61.
7. Complete the activity sheets which are part of this learning packet.
8. Review the objectives to make certain you understand what you are expected to have learned. Performance of these objectives will be evaluated on the post-test.
9. Ask your instructor for the test over this module. You must achieve at least 90 percent accuracy on this test before proceeding to the next module.
10. Once you have completed the written test with at least 90 percent accuracy, ask your instructor for permission to proceed to the next module.

Example in Health Occupations. Module H077-210, "Assisting the Patient with Oral Hygiene"

Procedures

1. Read the objectives.
2. View and listen to the slide/tape presentation "Assisting the Patient with Oral Hygiene"
3. For additional information refer to the following:
   a. Donovan, John; Belsjoe, Edith; Dillon, Daniel, The Nurse Aide, pp. 92 and 292.
   b. Fuerst/Wolfe, Fundamentals of Nursing, pp. 301-307.
   c. Thompson/Rosdahl, Textbook of Basic Nursing, pp. 254-255.
4. Refer back to the objectives to be certain you have an understanding of the module.
5. Take the Activity Sheet to the Fundamentals Lab and practice the procedure.
6. Contact your instructor for evaluation of this demonstration lesson.

Information Sheets. The subject matter or technical information in a module should be organized into three basic parts:

1. The introduction
2. The body
3. The summary or closing

The introduction should lead into the body of the module, which presents the "meat" of the lesson. Concepts, principles, and examples are explained in the information sheets. Steps of procedure will be given for lessons requiring the development of psychomotor skill.

The information included should relate to the objectives. Technical information that the student will need to know for this course and for future courses or during future employment must be included. This may include scientific facts, mathematical procedures or formulas, definitions or explanations of terms, charts, or tables, diagrams or pictures, and examples. This essential information included in your module information sheets should have been identified during the task analysis discussed in Section IV.

With the vast amount of information available today in most instructional areas, the instructor must be selective about what is included in the individualized instruction module. If the wrong content is included, students will perceive the module as trivial or irrelevant, or so complicated that they cannot understand.

Sometimes information that is "nice to know" may be included. It does not relate directly to the objectives but may serve to motivate the student or build interest. This information may help some students see the importance of the lesson and how the information relates to the course or job. Materials related to historical events, social significance, employment opportunities, or economic importance may be included. Since these are not directly related to the objectives, they should not be included in the evaluation procedures and should be very limited.

The summary or closure of the information sheets pulls the loose ends together and helps the student organize thoughts. It may help draw a conclusion or make a judgment. Materials are related back to objectives, and major concepts and principles are re-emphasized. It may be desirable to relate this lesson to previous and future lessons.

There are a number of ways to present subject material. This will be influenced by the type of material and its internal relationship. By varying the organization from one module to the next, the course as a whole is more interesting. A number of organizational techniques follow. Keep in mind that the information presented must be tied to the lesson objectives. Ask the following questions when writing and organizing informational materials.

Is there adequate subject matter information?

Is the language at the student's level?

Is there a logical sequence and flow?

Is it interesting to read?

Are the illustrations clear and adequate?

Are the materials free of stereotyping?

Have copyrighted materials been used?

Organizing Materials

Chronological Order. Some modules can be organized according to a time sequence such as when important discoveries were made, significant events occurred, or important people were involved. For example, a module in American History may be organized this way. The introductory module of a technical course may use this type of organization when giving background information about a particular subject area.

General to Specific. First present a broad overview of the module so that students develop a general idea of what is involved. From the general overview, narrow the information down to specific details or ideas.

Prerequisite Order. Students can better grasp complex ideas if they start with prerequisite ideas, then build on these with more detailed material. Finally, tie these basic ideas together to form your complex concept or principle.

Concrete to Abstract. Often abstract ideas are hard for students to grasp, so start with examples or descriptions of concrete items that are immediately understood. Then develop abstractions from these examples.

Occupational Skills. Information may be organized in much the same way as it would be in a demonstration. Present the step-by-step sequence the student must follow to perform some skill.

After determining the way materials are to be organized, select a writing style. Make a rough outline of the information to be included and expand this outline using one of the following styles.

Outline Form. It may be easier to see the relationship between complex items if the information is presented in outline form with major topics as headings. This probably works best in technical areas which usually involve many specific facts or terms. Often subheadings are expanded into a sentence form. For example, this style could be used for presenting occupational information about job clusters or specific jobs.

FIGURE 10

Sample
INFORMATION SHEET OUTLINE
THE PATIENT'S CHART

I. Contents
    A. Admission Sheet
        1. Name, age, address, occupation, religion, sex, marital status
        2. Attending physician
        3. Insurance company
    B. Doctor's Orders
        1. Pertinent data
        2. Orders for health team to carry out

Step-by-Step. This style is somewhat similar to the outline form; however, the items are presented in the specific order students would follow in developing the skill.

FIGURE 11

SAMPLE INFORMATION SHEET

Butt Welding Procedures

Step 1: Prepare your metal

If the metal is rusty, it will be necessary to remove the rust to insure a strong weld without pits or pockets. Use a wire brush. Small pieces may be cleaned with the brush on the pedestal grinder. Be sure the piece is securely held to prevent the wire brush from grabbing or throwing the metal.

Thicker metal should be veed out. Determine whether the double vee, the feather edge, or the shoulder edge is to be used. Grind a 30-degree angle on each piece, using the pedestal or portable grinder. Be sure all shields are on the grinders and your safety goggles are in place.

Step 2: Select your electrode

Paragraph or Textbook Form. The informational materials are organized into related sections under topic headings like those in a textbook.

FIGURE 12

SAMPLE INFORMATION SHEET

NOTES

However, there are methods or steps to understand and utilize in human relationships just as there are specific steps in making a bed. The first step is to begin to understand the ego states of the personality.

STRUCTURAL ANALYSIS

The structural analysis of the individual personality concerns the ego states. There are many technical definitions of an ego state, but it is basically a consistent related set of feelings and behavior patterns. The ego states in TA have simple, direct terms -- the Parent, Adult, and Child. These states of being are not roles, but separate and distinct psychological realities. All of these are sources of behavior.

Narrative Form. The information is given as if the instructor were telling a story or talking directly to a student from lecture notes. Although this style is seldom used, it is appropriate for affective techniques such as presenting case studies.

FIGURE 13

SAMPLE INFORMATION SHEET

NOTES

CHILD

The second ego state is the Child. It consists of all the feelings that come naturally to the individual. It also consists of a tape recording of all the feelings that you experienced or were taught in specific situations; it is the internal reaction to external occurrences. In your Child state, you act and feel as you did in childhood, and regardless of your age, there is a Child ego state within you. Whenever you respond as you did in childhood or whenever you are being directed totally by your feelings, then you are acting in your Child ego state.

The Child has three separate parts: The Natural Child, the Little Professor, and the Adapted Child. Each one has its own characteristics of feelings and patterns of action.

Can you guess some of the characteristics of the Natural Child? They are feelings and actions that a baby does "naturally." The Natural Child is like a self-centered, untrained, expressive infant which has spontaneous expression.

Question and Answer. The information is written in a manner similar to a discussion. Questions are developed for each major topic and then answered in subsequent paragraphs. This style is especially good for emphasizing or pointing out specific facts or key points.

FIGURE 14

SAMPLE INFORMATION SHEET

WHAT INFORMATION IS NEEDED WITH A SOIL SAMPLE?

Information about each field represented by a soil sample is essential to interpret the laboratory values and suggest a useful fertility program. Information requested include the following:

1. Acres represented
2. Planned plowing depth
3. Last crop grown
4. Recency of liming and amount per acre
5. Recency of using rock phosphate
6. Irrigation and land leveling practices or plans
7. Kind and amount of fertilizer applied last year
8. Soil characteristics such as bottomland, upland, stonyness, and topography
9. Cropping system planned for next four years
10. Yield goals

A Combination of the Above.

It is often advisable to mix the students' study of technical information with related learning activities. Students may view a slide presentation, answer study questions, or perform some lab work before continuing with the next section of information in the module. Be sure that such specific directions are given in the procedures and the information sheets.

Include charts, drawings, pictures, or graphs with the information. Small items can be placed in the right margin (the note section) of the page, whereas larger items will need to be placed in the middle or across the bottom of a page.

Often the beginning curriculum developer utilizes materials developed by other individuals. A danger exists if materials copyrighted by others are later reproduced. It is the writer's responsibility to turn in an original manuscript. Also, the writer should be especially careful so that materials are free of race or sex discrimination.

Learning Activities. Learning activities are an additional vehicle by which students gain knowledge or skills presented in the module. The activities selected must be appropriate to the learner characteristics discussed in Section III. Alternative learning activities should be provided to accommodate differences. Learning activities must be related to objectives and content previously studied.

The learning activities portion of modules developed at State Fair Community College are often divided in two parts. The first part provides study questions to reinforce student learning. A variety of questions is important. True/false, multiple choice, short answer, essay, and discussion can be used according to the level of cognitive learning required. For example, is recall or evaluation of the information desired from the student?

The second part of the learning activities provides for more active participation by the student. The instructor should include optional or alternative activities to provide for student differences, interests, and class time allocations. Lab exercises, job sheets, checkpoints, and check lists can be included to give the students directions for completing the activity. Activities can be performed in the classroom, the lab, other school facilities such as the shop or library, in the home, in the community, or in local businesses. Section VII discusses learning activities in more detail.

Since learning activities provide feedback to the student, procedures must be developed to provide this immediate response. Activity sheet keys, checkpoints, and lab exercise keys can be used. A student aide can be used to provide assistance or conduct small review sessions. Feedback should let students know if they are ready to proceed or need more review.

FIGURE 15

SAMPLE LEARNING ACTIVITIES

A. Directions: Type the sentences as they appear on this sheet in the space provided. Make corrections using the product indicated.
    1. Liquid - in bottle container
       The corractiln fluid shogld be undetectible.

B. There are advantages and disadvantages to each of the five basic joints. List one advantage and one disadvantage of each of the five joints.
    1. Butt joint -
       Advantage ______________________________
       ____
       Disadvantage ______________________________
       ____
    2. "T" Joint -
       Advantage ______________________________
       ____
       Disadvantage ______________________________
       ____

C. Go to the lab and practice this demonstration lesson. Follow these procedural steps.
   1. Overbed Table
      a. Identify the overbed table
      b. Slide the top back to reveal tray and mirror inside
      c. Pop up mirror
      d. Slide top to original position
      e. Identify handle on side
      f. Turn handle to adjust to proper height
      g. Position overbed table over the bed
      h. Adjust height
      i. Position overbed table for use by a patient in a chair
      j. Adjust height

D. Obtain a soil probe and take a probe in the following locations. Being careful not to disturb the core, locate, sketch, and measure the horizons. Bring at least one sample to class.
   1. pasture soil
   2. hillside - cultivated field
   3. level cultivated field
   4. bottom or creek soil

E. List the meaning assigned each letter and number of the American Welding Society/American Standards for Testing of Materials classification system. (List general meaning and not the special values of the E-70 18 electrode.)

E 70 18

E ____

70 ____

1 ____

8 ____

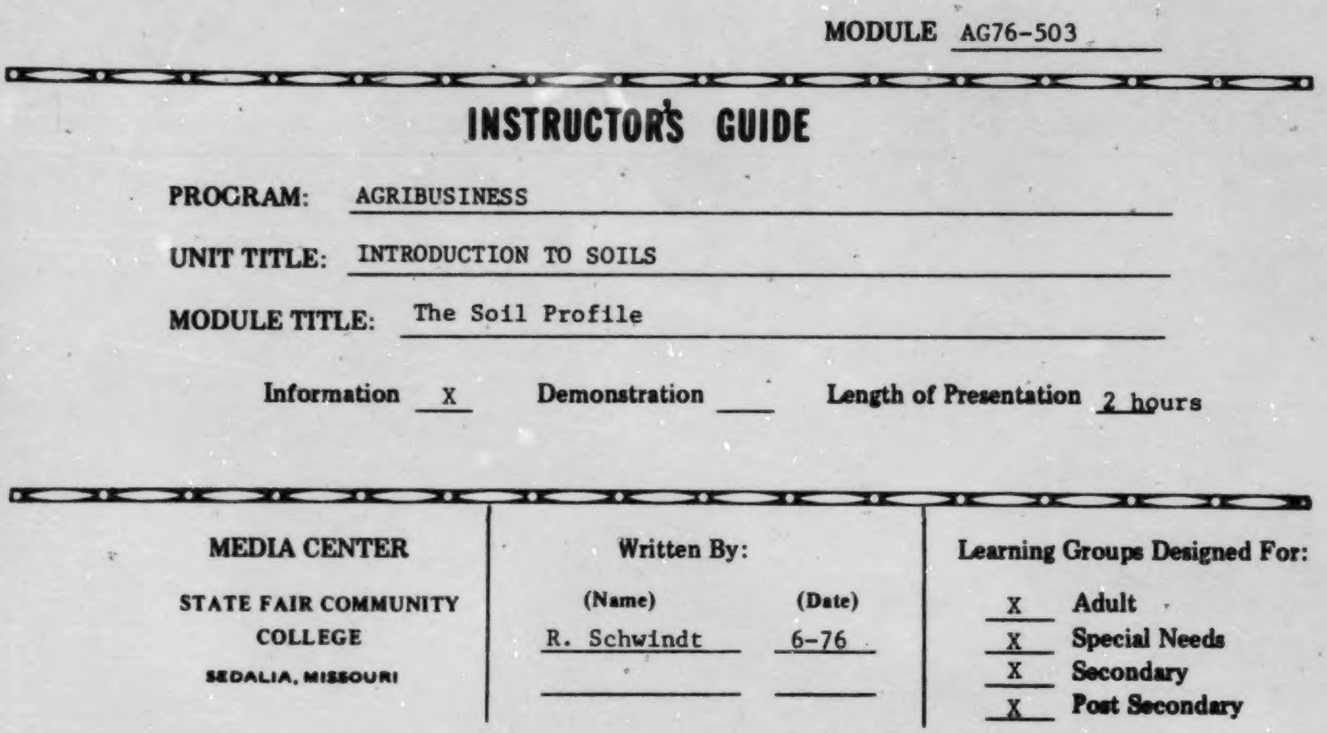
THE INSTRUCTOR'S GUIDE

The instructor's guide includes:

a. Title information
b. Introduction
c. Objectives
d. Teaching/learning materials
e. Suggested instructional methods
f. Lesson outline
g. Interaction items
h. Learning activity key
i. Evaluation and key
j. Script

Title information. The title page includes the program or course, unit, module title and number, and approximate length. The type of module--informational or demonstrational--is also indicated, and the learning audience is also given.

FIGURE 16



MODULE AG76-503

INSTRUCTOR'S GUIDE

PROGRAM: AGRIBUSINESS

UNIT TITLE: INTRODUCTION TO SOILS

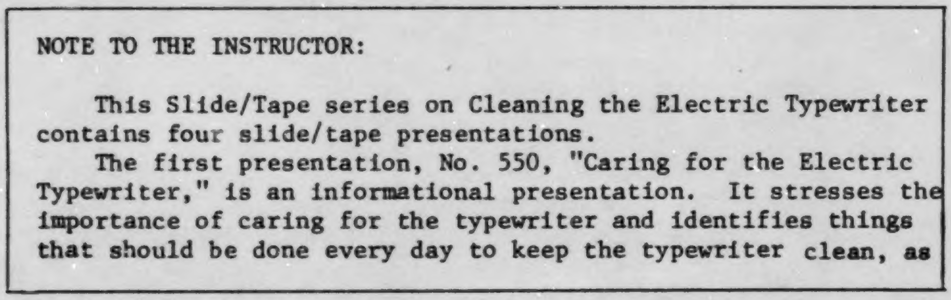
MODULE TITLE: The Soil Profile

Information X **Demonstration** ___ **Length of Presentation** 2 hours

MEDIA CENTER	**Written By:**		**Learning Groups Designed For:**
STATE FAIR COMMUNITY COLLEGE	**(Name)**	**(Date)**	X **Adult**
SEDALIA, MISSOURI	R. Schwindt	6-76	X **Special Needs**
			X **Secondary**
			X **Post Secondary**

Introduction. The introduction explains the purpose or importance of the module with a brief description of its content. The introduction in the student manual may be used, or the introduction may be designed to provide the instructor with the basic information presented earlier.

FIGURE 17



NOTE TO THE INSTRUCTOR:

This Slide/Tape series on Cleaning the Electric Typewriter contains four slide/tape presentations.

The first presentation, No. 550, "Caring for the Electric Typewriter," is an informational presentation. It stresses the importance of caring for the typewriter and identifies things that should be done every day to keep the typewriter clean, as well as those things that should be done on a weekly basis for a more thorough cleaning. It briefly shows the kinds of cleaners and supplies that are available and how they are used.

The second presentation, No. 551, "Proper Use of Typewriter Cleaners," goes into step-by-step procedures for using each kind of typewriter cleaner. This slide/tape presentation can be used by the student as he is actually experimenting with each cleaner and brush.

Objectives. These objectives are the same as those given in the student manual. For example, the objectives for Ag module 503 would be:

FIGURE 18

Upon completing this lesson the student should be able to:

1. Differentiate between soil profile and soil horizon, solum and regolith, and eluviation and illuviation.
2. Describe the four major horizons of a mineral soil.
3. Identify the minor horizons of the topsoil and subsoil.
4. Sketch a typical soil horizon for three soil bodies.
5. Identify the major horizons from a soil profile or monolith.

Teaching/learning materials. The materials needed to teach this lesson are listed. The type of materials included in the module packet--such as student manual, film loop, or videotape--is indicated. Equipment or demonstration items--such as E6010 electrodes, soil test kit, model D typewriter--are specified. Also, student or teacher references are listed.

FIGURE 19

TEACHING/LEARNING MATERIALS: (Number Included)

__1__ **Student Packet** AG76-503
__1__ **Instructor's Guide, Key, and Script**
__1__ **Slide/Tape Presentation** AG76-503
Soil Monoliths

_____ **Video Tape**
_____ **Film Loop**
_____ **Cassette Tape**

FIGURE 20

SUPPLIES & REFERENCES
Mimeograph and Fluid Techniques, A.B. Dick Co.
Stencil Duplicating Systems, Straub-Gibson
Slide/Tape Presentation No. 540, Cutting a Stencil
Handout No. 54, Rough Draft of Manuscript
Handout No. 55, Sample One-Page Advertisement
Handout No. 56, Sample Postal Card
Handout No. 57, Sample Folded Program
Stencils--4
Correction fluid
Typewriter cleaning supplies

Suggested instructional methods. From past experience, research, and association with others, the curriculum developer should be able to recommend the best methods by which the module should be taught. Also indicate alternative teaching methods which may be related to an individual program or course, instructor expertise, or class or lab facilities.

Alternative teaching activities should be suggested. Ideas on demonstrations, audiovisual materials, or field trips can be given. Student learning activities can be described in more detail with suggestions given on organizing or providing for these activities.

FIGURE 21

SUGGESTED ACTIVITIES:
1. Provide students with soil probes to develop profile sketches from various locations.
2. Contact local Soil Conservation Service to obtain soil cores showing profile characteristics.
3. Take field trips to study different profiles.
4. Prepare or have class prepare soil monoliths.

Outline. A topical outline of the information could be followed by the instructor in traditional lecture or discussion classes. By reading the outline, the instructor can immediately determine what specific information is provided in the module. For demonstration modules, this outline should be in a step-by-step format.

FIGURE 22

Outline for Health Occupations Module 404--Patterns of Adjustment
A. The first factor that influences behavior is basic needs.
    1. Level I is physiological needs.
    2. Level II is safety needs.
    3. Level III is the need to belong.
    4. Level IV is the need for recognition, self-respect, and esteem.
    5. Level V is the need for self-actualization or fulfillment.
B. The second factor that influences behavior is heredity.
    1. We each have certain physical potentials.
    2. We each have certain mental potentials.
    3. We each have certain emotional potentials.

Interaction items. Questions utilized by the instructor to generate discussion, measure student understanding, or emphasize important points during classroom discussion or individual consultation should be developed. These questions should be related to the objectives and keyed to the objectives or outline. Sometimes, these same questions may be used or reworded in the study questions of the learning activities section.

FIGURE 23

INTERACTION ITEMS
1. What are the points of caution to remember about the overbed table?
2. What are the points of caution to remember about the light?
3. What are the points of caution to remember about the call light?
4. What are the points of caution to remember about the side rails?
5. What are the other positions for placement of the IV pole?

Activity key. A copy of the learning activities with the answers added is provided in the instructor's guide. When developing student learning activities, State Fair Community College curriculum developers should place the answers in parentheses and they will be typed on the key. For activities with no specific answer, a sample answer can be given on the key.

FIGURE 24

SAMPLE KEY FOR AN ACTIVITY SHEET

1. The arrangement of individual soil particles into aggregates creates soil ____structure____.
2. By increasing the size and arrangement of soil aggregates, we increase the ability to:
    1. allow for air and water movement
    2. allow for plant root growth
    3. hold water available for plants
3. Top soil generally has a ____crumb____ or ____granular____ type of soil structure.

Evaluation key. The instructor's guide should include the evaluation key, providing answers for cognitive type tests, and suggestions on the use of checklists for psychomotor or affective domain evaluation.

FIGURE 25

_____Pre-test SAMPLE KEY Student________________
_____Post-test STUDENT EVALUATION
SHIELDED METAL ARC ELECTRODES

True and False: If the answer is true, circle the "T." When the answer is false, cirlce the "F."

T [✓ F] 1. Mild steel base metal has a tensile strength around 75,000 pounds per square inch.
T [✓ F] 2. Electrodes that develop a soft arc produce deep penetration.
[✓ T] F 3. Mild steel electrodes will not have a group color.
[✓ T] F 4. The E prefix designates the E6013 electrode as an electric arc electrode.

Evaluation. Clear directions should be provided to the student. Module evaluation should attempt to measure all three domains.

1. Cognitive - knowledge
2. Affective - attitudes
3. Psychomotor - skills

Evaluation measures the student's mastery of objectives. It can also be used as a pre-test. Multiple forms of this test should be developed, and a variety of test questions--such as multiple choice, true/false, short answer, or discussion--should be used to measure cognitive learning. For skill and attitudinal change evaluation, develop a checklist. Include provisions for students who do not pass the evaluation the first time. Evaluation procedures will be discussed more fully in Section VIII.

Script. The slide/tape or audiotape script is included in the instructor's guide. Some instructors may want to make the script available to the students, while others will not. The script should indicate the slide number, slide content, and narration. Suggestions on developing a script are in Section X.

FIGURE 26

SAMPLE SCRIPT
Business and Office Module No. 550, "Caring for the Electric Typewriter"

Video	Audio
1. Media Title	This is a presentation of the Media Center, State Fair Community College
2. Title Slide	This is Slide/Tape Presentation, No. 550, "Caring for the Electric Typewriter."
3. Girl at Typewriter	Proper care of the typewriter will save many hours of wasted time, much annoyance, and expensive repair bills. A minimum amount of care will help to increase the life of the machine as well as its daily performance.

4. Typewriter--"Clean me regularly."	The electric typewriter is a precision writing instrument. In order to keep a typewriter operating properly, it is essential that it be cleaned regularly.
5. List of Daily Maintenance	Daily Maintenance: There are a few things you should do every day to aid in keeping your typewriter clean and help insure clear, crisp typed copy.
6. Brush typeface	The typeface
7. Brush element	or typing element should be brushed with a stiff brush every day. The use of cleaning fluid is not always necessary for daily cleaning.

Section VII

LEARNING ACTIVITIES

Why Are Learning Activities Important?

One of the major philosophies underlying individualized instruction is that students have "individual" learning styles, and will learn best when instructional methods are matched with these learning styles.

By using a variety of learning activities, some of the problems of conventional teaching methods will be reduced. Student motivation and involvement will be increased, resulting in a decrease in the failure or dropout rate because the activities utilized are interesting and meaningful.

Instructors recognize many student differences, such as reading rate and comprehension, understanding of concepts and principles, and performance of psychomotor skills. When they can prescribe activities which allow students to overcome their learning problems and master a subject, true teaching and learning take place. This requires that the teacher make alternative methods for completing a module available to the student.

A variety of activities may also be required because of the different types of learning required in a module. Welding students may learn the types of electrodes and their uses in studying a textbook and viewing a slide presentation, but they will never learn how to run a fillet weld without actual practice in a welding shop. A secretary cannot learn to type and a nurse cannot learn to give an injection from reading a textbook only. Other learning activities are required to master skills, and these activities differ from those required for understanding concepts or developing attitudes.

The activities prescribed for students may vary according to their interest in that subject. Certain activities are required of all students to ensure that they reach a minimum standard of competence. However, additional activities should be available for those students who have special interests and want to learn more about that subject.

What Should Be Considered in Developing Learning Activities?

1. Learning activities should be related to the lesson objectives. They should help students develop the kind of competence called for in the objectives. Will the activity assignments help students learn or are they busy work? Do review questions ask for relevent material or do they ask for trivial information to see if students read the assignment? By relating activities to the objectives, students will be more easily able to see their value.

2. The learning activities should be clearly written so that students know what is expected of them. If directions are unclear, students will become confused and waste time trying to figure out what they are to do. All materials and resources students will need should be listed, and the procedures they are to follow must be clearly defined. A vocabulary that is easily understood by the student should be used. Do not confuse students with big words or undefined terms.

3. If complex tasks or concepts are involved, present materials in small steps or units that are easily grasped by the student. The sequence must follow a logical order easily understood by students. The sequence selected to present these units may facilitate or it may hinder students' mastery of the total activity.

4. Learning activities should provide an opportunity for practice, especially if they include skills that students are expected to learn.

Only through practice will students be able to type business letters or recognize incomplete sentences. Caution should be taken to insure that students follow correct procedures and do not take shortcuts, for something learned incorrectly may be worse than something not learned at all. Provide for some variety in the students' practice to reduce monotony.

5. Develop activities with provisions for immediate feedback and reinforcement. Students should find out as soon as possible if they performed correctly or gave correct answers. To accomplish this, activity keys or student proctors can be used. Include checkpoints which require students to check with the instructor before proceeding to the next step. The instructor can then correct students before they have completed the entire activity wrong or compliment them on correct work.

6. Vary the types of activities from one module to the next. When just a few types of activities are used, they may soon become monotonous to the students. Remember that the type of activities selected will depend partially upon the type of learning called for by the objectives.

7. Learning activities are probably the most important part of an individualized instruction package because they allow for individual differences. By developing alternative activities, instructors can select activities which are best suited to students' individual styles of learning. Alternative activities can also be developed for students with different backgrounds, knowledge, and skills.

Additional or optional activities should be available for students with a special interest in that area. Extra credit may be given for these optional activities, or they may serve to differentiate between an "A" and "B" grade.

8. The selection of activities should be closely related to student evaluation procedures. Pre-tests may be used to determine which activities are most appropriate, and student performance on one activity may dictate additional activities. When students fail a module examination, review activities should be assigned based on their areas of weakness on the exam.

9. Students' progress in an individualized instruction setting is directly related to their involvement in the modules. The module and activities must provide for student motivation, as students are often working by themselves or in small group sessions rather than under the direct supervision of an instructor. If the instructor feels that student interest and motivation will decrease during an activity, provisions must be made in the setup of that activity.

What Types of Learning Activities Can Be Used?

Learning activities can be placed into three categories: (1) cognitive, which includes knowledge or intellectual skills; (2) psychomotor, which involves physical skills; and (3) affective, which relates to personal emotions and attitudes.

1. Cognitive - These activities are designed to increase students' knowledge. They may be low-level tasks, such as asking students to recall information, or they may require students to develop complex principles. The following are examples of activities designed to increase cognitive learning.

   a. Reading a textbook. A section of one or more textbooks may relate closely to an objective. Be sure to emphasize what students are to learn from the textbook.

   b. Studying references. A number of references should be available in the classroom, sections of which can be assigned for special reading. Most libraries have additional materials related to the subject; commercial companies, university extension services, and local businesses are other good sources of information. Certain vocational positions--like that of mechanic--require a person to use reference materials. Also, magazines and periodicals provide a source of new information on almost all subjects.

c. Programmed materials. A programmed textbook may be available in the subject area. If so, assign sections as they relate to the module objectives or develop programmed materials to meet module objectives and cover the content area.

d. Problem solving. Case histories can be given which present some problem that students are to develop solutions for based on information presented in the module. The student may be asked to develop a plan for some problem, such as designing the floor plan for a house.

e. Memorization. In order to complete some class assignments, it may be necessary for students to memorize certain information such as shorthand characters, chemical symbols, or mathematical formulas.

f. Preparing reports. Students may be required to utilize a number of cognitive skills in developing a report. They may have to analyze or interpret materials from a variety of sources and then organize this material into a final form.

g. Comparing or contrasting. It may be important for students to analyze two or more situations. They may need to recognize similarities or identify differences. Pictures of two similar situations could be used.

h. Preparing visuals. Charts, diagrams, drawings, sketches, and maps are examples of some types of visuals the students may be asked to develop.

i. Interpreting visuals. It may be essential for the student to be able to read charts, blueprints, wiring schematics, and similar types of materials.

j. Audiovisual materials. There is a wide variety of audiovisual materials which can be used to increase students' learning. Audio tapes, records, slides, videotapes, and 8mm or 16mm films are some examples.

k. Listening to guest speakers. Schedule speakers for the class or maintain a listing of community or school meetings at which speakers will be presenting materials on related subjects. For example, there are numerous meetings on gardening in the spring which would prove interesting to horticultural students.

l. Interviewing outside experts. There is an abundance of experts in your community who would be glad to answer questions from students. These are such persons as the municipal judge, a retired science teacher, or the local veterinarian.

2. Psychomotor - The objectives for some modules call for the student to develop specific skills involving muscular action or body coordination. Most vocational courses seek to develop skills of this type. The more realistic the activity is, the better the student will be prepared for future use of that skill. The following are examples of activities involving the development of psychomotor skills.

a. Operating models or mock-ups. These can help the student understand the operation of more complex systems. Models can be used where the purchase of the actual mechanism would be prohibitive. Models can be used to break a complex operation into its basic parts. This may give the student an idea of the skills required or actual practice and skill development.

b. Skill practice. Many skills can be developed only through repeated practice. Typing a business letter, cooking a steak, hanging a door, or timing a car all require considerable practice. Practice conditions should be as realistic as possible.

c. Timed practices. Some skills require the student to perform perfectly over an extended period of time, such as a three-minute typing lesson or shorthand dictation test.

d. Laboratory experiments. Using specified equipment and procedures, the student may be required to perform some experiment and then summarize the findings.

e. Collecting objects or articles. The students may need to become familiar with a class of objects by collecting samples, such as tree leaves, weeds, or job listings.

f. Demonstrations. Demonstrations can be given to students on an individual, small group, or entire class basis. A series of demonstrations that students are required to perform for the class or in small group situations can be designed.

g. Observing others. The student may be able to get an understand of techniques used to perform some task by observing a skilled worker in an actual work situation.

h. Scaled down performance. Sometimes the supplies may be too expensive or the final product so bulky that it is more desirable for students to use scaled down versions. For instance, carpentry students may build a scaled down section of a house.

i. Real life situations. Arrange for the student to work a short time in an actual work situation. This will require close coordination among the school, the employer, the student, the instructor, and the job supervisor.

3. Affective - This is the most difficult domain to design learning activities for, since students' attitudes and emotions are often the hardest to identify and change. Often the instructor must interpret these from observing students' skill performance or study habits. The following are examples of activities which may influence students' attitudes. Activities may be designed to increase awareness, make a specified response, accept a value, or develop a view of philosophy.

a. Role playing/simulations. Students may be assigned a role in some specified situation and have their performances observed.

b. Small group interactions. Small group projects can be used for objectives which require students to discuss, plan, or work together to accomplish some task.

c. Observing others. Students may increase understanding and develop desirable attitudes by observing skilled workers or professionals in real life situations.

d. Case studies. The way students observe and react to situations will depend upon their feelings and attitudes. Directions toward solving a problem associated with a case study may help the student examine these reactions.

e. Self evaluation. Checklists can be developed for students, or videotapes of themselves may be viewed. In all cases, students must not be made to feel like they are being criticized or analyzed.

f. Plans for improvement. For some types of modules students may be asked to develop a plan by which they can correct deficiencies in their training.

When the wrong choice of learning procedures and activities are used in individualized instruction, the students will often lose their motivation, become bored with the class, and complain about the course. Their absenteeism will increase and learning will decrease. If these problems show up when testing a new module, check to see if the methods used to present the materials are appropriate. Are you having them read something when they should be conducting an experiment in the lab?

After developing learning activities, check to see if they provide for desired learning. The following evaluation checklist will prove useful in identifying activity weaknesses.

FIGURE 27

ACTIVITY EVALUATION

Activity ____

		Yes	No
1.	Is the activity related to a lesson objective? (Objective no. _____)		
2.	Is the activity clearly described?		
3.	Are the steps appropriate and realistic?		
4.	Are the steps in prerequisite order?		
5.	Are there provisions for student practice?		
6.	Are there provisions for feedback and reinforcement?		
7.	Is there a variety of activities within the module?		
8.	Is there a variety of activities from one module to the next?		
9.	Were there alternative activities developed?		
10.	Do evaluation procedures related to activity selection and assignment?		
11.	Are the activities motivational?		

The instructor may wish to use a worksheet similar to this for developing learning activities. Use one sheet per objective. Be sure the activities allow for students to develop the skills or competencies stated in the objective. Include activities in all three domains.

FIGURE 28

LEARNING ACTIVITY WORKSHEET

Module Title ______________________________

Curriculum Developer ______________________________

Objective for which activities are to be developed ______________________________

____

Activity (Give description of what students are to do and what materials or resources they will need.)

1. Psychomotor:

2. Cognitive:

3. Affective:

SAMPLE LEARNING ACTIVITIES

Cognitive Domain

Health Occupations

Read and study the Information Sheets. Also, read and study Transactional Analysis by Dorothy Babcock, American Journal of Nursing, Volume 76, Number 7, July, 1976, p. 1152.

It is important that you recognize the ways in which you can choose which ego state you utilize in specific situations. Write out possible ego state responses to these situations. The first one is completed as an example.

a. A classmate reports for clinical duty tired and blurry-eyed.

PARENT: "You shouldn't stay out so late."

ADULT: "That person may be ill."

CHILD: "Wow, that person must have had a great time last night."

b. Because you were very busy with your patient assignment, you neglected to do a procedure, and your instructor calls your attention to the error.

PARENT: ______________________________

ADULT: ______________________________

CHILD: ______________________________

Welding

Sketch the correct edge preparation for each of the thicknesses of metal used on a basic butt joint to be welded in the flat position on one side.

A. 1/8" square butt joint -

B. 1/4" butt joint -

Define open-root and closed-root spacing.

____

____

____

SAMPLE LEARNING ACTIVITIES

Cognitive Domain (continued)

Welding

Normally the electrode is moved crosswise between ______________________

and ______________________ times for each inch of weave bead.

Agriculture

Demonstrate the relationship of pore space to structure using beakers and various sizes of beads.

SAMPLE LEARNING ACTIVITIES

Psychomotor Domain

Health Occupations

Read the following procedural steps prior to practicing the demonstration:

	YES	NO
1. Assemble necessary equipment		
2. Explain procedure to the patient		
3. Place towel under chin with emesis basin nearby		
4. Prepare toothbrush with dentifrice		
5. Place the bristles of brush pointing toward the roots of teeth. Turn the brush until the bristles are at a 45° angle to the tooth surface. With a rolling motion, slowly draw bristles over the gum and tooth surfaces toward chewing/biting surface. Use overlapped brushing strokes.		

Practice this procedure in the laboratory with a classmate observing. When you feel you can successfully demonstrate the procedure, contact your instructor.

Business and Office

Obtain Handout No. 54 and type a stencil of the rough draft manuscript in mailable form.
Ask your instructor for approval of the typed stencil and for instructions for operating the mimeograph machine.
When your instructor approves your stencil, duplicate ten copies on the mimeograph and submit to your instructor three good copies for evaluation.

Welding

Find Job Print No. 2 which is the whitework for this module. Follow the instructions and drawing to complete the 1/4 inch by 4 by 6 weave plate. Remember to weld both sides of the plate. Then hand it in to your instructor and have him/her initial this sheet.

Date ________
Student has completed welding the weave pad from Job Print No. 2.
Initial _____

Agriculture

Take the students on a field trip to several different sites and let them judge the capability class of each site.

SAMPLE LEARNING ACTIVITIES

Affective Domain

Health Occupations

This section is an adaption of an exercise in Born to Win by James and Jongeward. In order to understand your parent ego state, you need to begin to understand your parents more fully. Answer the following questions about your parents.

a. What was their attitude about money and possessions? ________________

____

____

b. How did your parents react in a crisis such as death, illness, or an

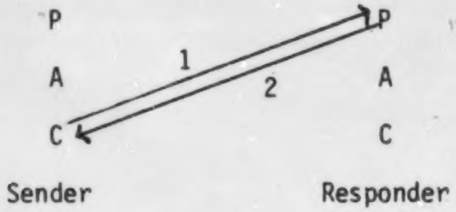
accident? ____

____

____

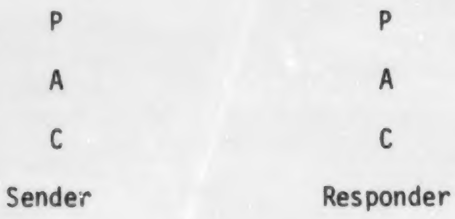
The following are examples of transactions. After reading the transaction, diagram it labeling the lines 1 and 2 and drawing them to the appropriate ego states. The first one in each section is completed for your reference.

Complementary Transactions



1. Patient: (angrily) "I don't want to take any more pills."

2. Nurse: (sympathetically) "I'm sure it gets tiresome to take your heart medication every six hours."



Section VIII

EVALUATION

The purpose of content evaluation is to provide feedback on what the student has learned in relation to module objectives. The feedback will be used to determine the direction of future study and instruction.

Mastery Learning Theory

Individualized instruction based on mastery learning differs from conventional ways of thinking about evaluation. Mastery learning provides for a high level of achievement regardless of how long it takes. This is quite the reverse of traditional education, which insists that all students spend equal amounts of time in the classroom but permits them to learn at varying levels of achievement. In traditional education we turn out students who are well educated (earned A and B grades) and those who are not (earned D and F grades) but certify that all have spent the same amount of time at the task.

Mastery learning has the following educational advantages:

1. If what we teach is important, presumably whether students learn it is important--more important than how long the process takes.
2. It lays the cognitive (knowing or perceiving) foundation for future learning by insisting that one unit must be mastered before subsequent learning is undertaken. This is advantageous, especially to students with poor records of past academic performance.
3. There is also an effective advantage for students with poor past records because it proves that they can be successful.
4. It offers a solution to the concern about erosion of academic standards.

With each student mastering the learning task, the teacher should expect students to achieve desired level of performance as a result of the flexibility within the system.

Evaluation of Student Learning

Teachers using an individualized instruction approach use behavioral objectives as the basis for planning instruction. As explained in an earlier section, intended outcomes or goals of the teaching/learning process include three main parts:

1. What the student will be able to do as a result of the instruction.
2. The conditions under which they will perform.
3. Standards or criteria which establish a minimum level of achievement for satisfactory performance.

Once the objectives have been developed for the module, test items may be constructed to measure the content which is determined to be significant.

The three domains identified by Bloom and others for educational endeavors lend themselves toward different evaluation systems.

The cognitive domain involves learning factual knowledge and can be evaluated with pencil and paper tests.

The affective domain requires an evaluation system that will measure emotional beliefs, attitudes, moral values, and appreciation. The evaluation plan for affective objectives will need to be in operation over a period of time sufficient to demonstrate change in attitude. Evaluation instruments will include performance checklists and inventories designed to measure student behavior patterns.

Muscular or motor skills constitute the psychomotor domain. Performance tests with check-sheets designed for the final product, or a go/no-go situation are used to evaluate psychomotor learning.

Within each domain the evaluation items should be matched with the level of the objective. The evaluation should be at the level of learning specified in the objective. For example, if the objective is to "identify" machine parts, the student should not be asked to show how the parts operate, since this is a higher level of learning than identification. Evaluation is a sampling technique--everything the student knows will not necessarily be included in an evaluation instrument.

Pretests are used before instruction to determine whether the student has already learned the knowledge or developed the skill to be presented in the module. Pretest results may permit students to bypass part or all of an individualized instructional module. Pretests are essential in the individualized instruction setting, since the teacher must know the student's entering capabilities.

Internal checkpoints are used to measure learning within a module. Often these checkpoints will measure learning specified by an enabling objective. Students must master a skill or concept presented earlier before they are able to build on that skill or concept later.

Post-tests are used to measure terminal objectives in all three domains in as near to actual situations as possible. Post-tests usually sample cognitive knowledge based on the principle that if the sample is representative, these selected questions will give a true measure of student knowledge. Since every student will not achieve the desired level of achievement on the first test, multiple (2 or 3) forms of the test are desirable.

Several guidelines should be followed when constructing a test. First, follow the general outline of the content your test is to cover. Since a test is a sampling of study knowledge, develop a pool of test items. Use tests from previous years. Be sure the items are not ambiguous. Do the students understand what they are being asked? Check to see that the items measure important material and not just trivial aspects. If possible, have another instructor or several previous students review the test to increase its validity.

There are several advantages for designing your evaluation procedures and instruments soon after identifying and writing your objectives. First, they will serve as another check of your objectives. After you have written your test, check to see if the questions actually measures what your objectives state. If not, your objectives may be invalid or need further clarification and revisions as to the actual performance desired. If your objectives check out, then you will need to redesign your test. This crosscheck helps eliminate both irrevelant objectives and test items.

By developing your evaluation instruments early, you can incorporate these instruments into appropriate places in the module. For example, you may want to use an internal checkpoint to see if the student can correctly perform the first steps in a task before they attempt to learn the latter steps.

FIGURE 29

A nurse normally uses standard procedure to record a patient's temperature, pulse, and respiration so this is taught as one module with a terminal objective such as: The student should be able to record a patient's TPR. Within this module we would find at least three enabling objectives: (1) to measure a patient's temperature, (2) to measure a patient's pulse, and (3) to measure a patient's respiration. The instructor may want to design three evaluation instruments to measure each of these enabling objectives immediately after the student has studied the information and performed the activities directly related to that enabling objective. A separate final evaluation instrument would then be designed to see if the student performed the entire sequence correctly.

Your test must be able to differentiate between students who have mastered the objectives and those who have not. You can use your students to help determine the appropriateness of your test questions. First give the test to students who have not had the unit or course. Those questions which many students answer correctly are probably too simple and should be rewritten or discarded.

Next give the test to students who have successfully completed the unit by the previously taught method. Those items which your successful students cannot pass should again be rewritten or discarded.

Your test should include enough questions related to each objective to see if the student has actually mastered the objective. The number of questions you use should be based on the relative importance of each objective.

The points for each test item will also be related to the relative importance of each objective. More points should be given for those items related to objectives you feel are the most important.

When you can relate your test items to their corresponding objectives, you can then compare the students performance for each objective. This will more clearly identify the specific objective students are having trouble with. Additional practice or studying can then be assigned in the areas where the students are low.

When pretests are designed and the results are evaluated in this way, it is easier to identify objectives which each student has already mastered or has no knowledge. Therefore, you can more truly individualize instruction and reduce unneeded repetition by the student.

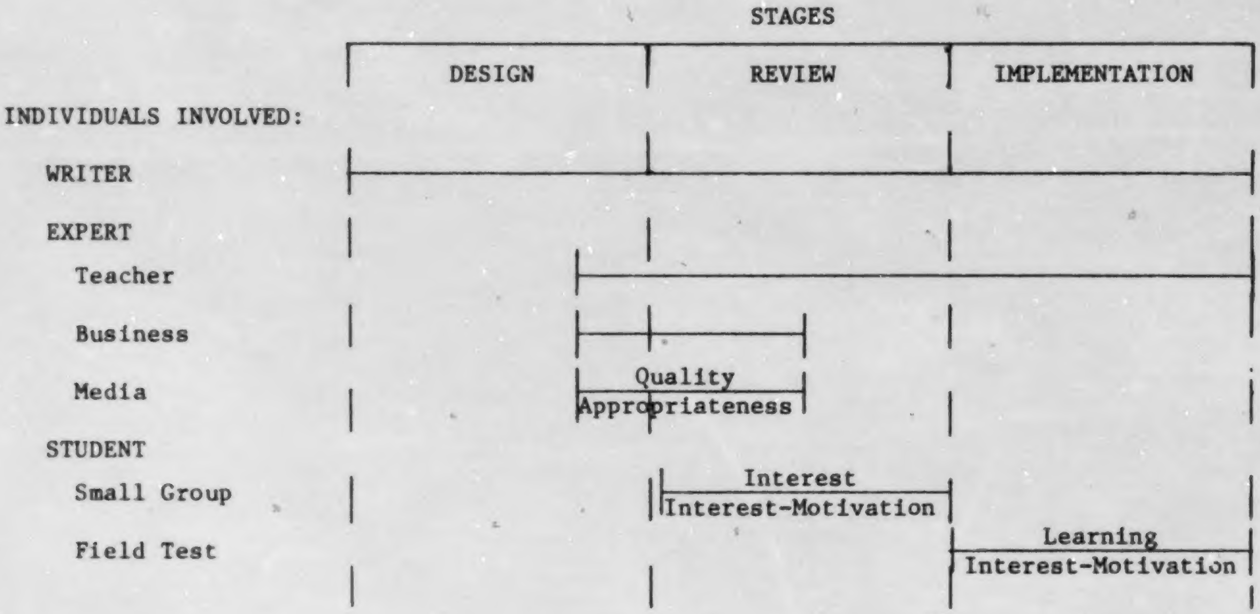
A Framework for the Evaluation of a Learning Module

A. The Purpose. The purpose of an evaluation system for the learning module is to determine the effectiveness of the module, to determine strengths and weaknesses of the module, and to provide a basis for the revision and updating of the module.

B. The Evaluation Process. The evaluation of a learning module involves both summative and formative aspects. It should be evaluated at several points during the development by the writer and outside individuals to see if it meets established criteria for design and content. The module should also be evaluated after it is completed by students and instructors to see if it teaches what it is designed to teach.

Evaluation and review of a module should be conducted throughout the three stages of its development as shown in the following diagram.

EVALUATION PROCESS


STAGES
DESIGN
REVIEW
IMPLEMENTATION
INDIVIDUALS INVOLVED:
WRITER
EXPERT
Teacher
Business
Media
Quality
Appropriateness
STUDENT
Small Group
Interest
Interest-Motivation
Field Test
Learning
Interest-Motivation

During the design stage, the writer should consult others for suggestions as to instructional strategies, content, and media usage, and incorporate their recommendations into the module.

During the review stage, the completed module should be evaluated by other instructors, individuals in business and industry, and media specialists, and tried out with small groups of students. Revisions should then be incorporated as needed.

During the implementation stage, the module must be incorporated into the instructional program and evaluated as to its effectiveness in the course or program by the instructor and students.

C. Individuals involved in the Evaluation Process and their Responsibilities.

1. Writer Self-evaluation. The developer should set a completed module aside for a few days, then evaluate it trying to put himself/herself in the students' place. The TEACHER'S EVALUATION OF A LEARNING MODULE FORM will be helpful in completing this evaluation. The writer will be evaluating not only the informational content of the module, but also the instructional strategies, format, and evaluation procedures. The writer will need to incorporate those suggestions from other evaluating parties into their module.

2. Expert Appraisal. The second step in module evaluation will be to have individuals knowledgeable in curriculum and instruction the content area, and media design evaluate the module. Each individual should evaluate the module based on their expertise.

> a. Experienced teachers in the instructional area should use the TEACHER'S EVALUATION OF A LEARNING MODULE form to evaluate the module. They should be especially aware of the instructional and motivational strategies involved.
>
> During the design and review stages of production, the teacher may wish to go through the module individually as would a student. Although the module will be reviewed by "content experts", the instructor should also evaluate the appropriateness of the objectives based on their background and knowledge.
>
> When evaluating the module during the implementation stage, the teacher will want to compare student progress and their attitude toward the materials with previously used materials.
>
> b. The CONSULTANT'S EVALUATION OF A LEARNING MODULE form may be used by individuals involved in business and industry to review the module for content accuracy. They should also review learning activities and procedures given for performing skills or tasks in relation to procedures followed in most work settings.

c. The MEDIA SPECIALIST EVALUATION OF A LEARNING MODULE form should be used by individuals in instructional technology. They will be concerned with the quality, audio and visual, of the mediated presentation, and its effectiveness in presenting the material rather than in the module content.

3. Student Evaluation.

a. Small group tryout. Before making the module a part of the instructional program it should be subjected to a small group of students representative of the target student population for a tryout. The feedback from this group will be gathered on the STUDENT EVALUATION OF A LEARNING MODULE form. These students may also be interviewed by the teacher, writer, or instructional development director to obtain information that may not show up on the evaluation form. The module may be rechecked with other small groups as revisions are made.

b. Field testing. The instructional module should be used with students in the home institution as well as with students in other institutions on a field test basis. Evaluation will be accomplished by students completing the STUDENT EVALUATION OF A LEARNING MODULE form and by teachers utilizing the TEACHER EVALUATION OF A LEARNING MODULE form. Instructors in the field test sites will record student pretest and posttest performance data which will help show the effects of the material on students learning.

D. Long-Term Evaluation. Long-term evaluation will be conducted by instructors using the materials on an on-going basis. These teachers will be aware when changes in the technical material in the module make parts of the module obsolete or dated.

However, an annual re-evaluation plan should be implemented so that needed updating will not be overlooked. The annual re-evaluation should include at least the instructor self-evaluation and the student small group evaluation.

Results of the module evaluation should be carefully considered and appropriate action taken to revise the materials where necessary. Without a system for module evaluation, the appropriateness, adequacy, technical quality, or effect of the module on the student will not be known.

TEACHER EVALUATION OF THE LEARNING MODULE

Module Title ______________________________ Number _________________

Instructor's Name ____

Instructor's Institution ____

Course Title __________________________________

Date Evaluated ________________________________

☐ Writer of Learning Module (Proceed to next page)

☐ User of Learning Module (Complete below)

Module was used for:

_____ Individualized Instruction
_____ Group Instruction
_____ Other (Explain) ____

Number of students involved _______________

Would you use this module again?

_____ Yes
_____ Yes, with modifications such as ________________________________
____
_____ No

The time spent by students with this module in comparison to previous teaching materials and methods was:

_____ More
_____ About the same
_____ Less

Student achievement following use of this module in comparison to previous materials and methods was:

_____ Higher
_____ About the same
_____ Lower

The greatest strength of this module is: ____________________________________
____

The greatest weakness of this module is: ____________________________________
____

INSTRUCTIONS: Please read each of the following questions. Check either Yes, No, or Not Applicable in response to each question.

MODULE FORMAT	YES	NO	NA
1. Does the module format include the following components?			
a. Title Page	___	___	___
b. Introduction	___	___	___
c. Objectives	___	___	___
d. Procedures	___	___	___
e. Information Sheets	___	___	___
f. Learning Activities	___	___	___
g. Appropriate Media	___	___	___
h. Evaluation	___	___	___
2. Are the module components logically sequenced?	___	___	___
INTRODUCTION			
3. Is the introduction interesting and motivating?	___	___	___
4. Does the introduction tell:			
a. What the module is about?	___	___	___
b. Why the content is important?	___	___	___
c. When the content will be used?	___	___	___
d. Where the content is useful?	___	___	___
e. How the content will benefit the student?	___	___	___
OBJECTIVES			
5. Are the objectives stated in terms which include:			
a. Key words that identify the desired type and level of performance?	___	___	___
b. The condition under which the desired performance should occur.	___	___	___
c. Minimum standards for acceptable performance?	___	___	___
6. Are the objectives representative of the needs of the occupational area, including:			
a. Technical and related information?	___	___	___
b. Manipulative skills?	___	___	___
c. Social and attitudinal traits?	___	___	___
PROCEDURES			
7. Are the procedures complete and clearly stated?	___	___	___
8. Do the procedures clearly describe any options available to the learner in completing the module?	___	___	___

	YES	NO	NA
9. Do the procedure contain key words indicative of compatibility with the module objectives and evaluation test items?	___	___	___
10. Do the procedures present materials and activities in a logical order.	___	___	___
11. Do the procedures explain the use of checkpoints/ checklists and the final evaluation?	___	___	___

INFORMATION SHEETS

	YES	NO	NA
12. Do information sheets contain technically correct information?	___	___	___
13. Do the information sheets provide all the information needed to complete the module?	___	___	___
14. Do the information sheets present information in prerequisite order?	___	___	___
15. Are information sheets written on the learner's comprehension level?	___	___	___
16. Do illustrations help explain written information?	___	___	___

LEARNING ACTIVITIES

	YES	NO	NA
17. Do the learning activities clarify:			
a. What the student is to do?	___	___	___
b. How they are to complete the activity?	___	___	___
c. Why it is necessary?	___	___	___
18. Are the learning activities in prerequisite order?	___	___	___
19. Do the learning activities lead to the attainment of the competencies stated in the objectives?	___	___	___
20. Are alternate and/or supplemental activites provided to account for?	___	___	___
21. Do checklists and self-checks assess the learner's progress toward the objectives and provide feedback for learner reinforcement?	___	___	___
22. Is repetition minimized amoung activity assignments?	___	___	___
23. Are opportunities for practice provided where proficiency is required?	___	___	___
24. Do the learning activities require reasonable amounts of time to complete?	___	___	___

EVALUATION	YES	NO	NA
25. Are answers to tests and samples of acceptable learning activities provided?	____	____	____
26. Are evaluation procedures written to measure the cognitive, affective, and psychomotor achievements of objectives?	____	____	____
27. Are test items worded simply and clearly?	____	____	____
28. Are pretests and posttests equivalent in form, content, and length?	____	____	____
29. Do test items include key words compatible with those in the objectives and content?	____	____	____
30. Do student self-evaluations and tests include clear directions for completing and scoring?	____	____	____
MEDIA			
31. Does the audio and/or visual quality of the media contribute to the learning experience?	____	____	____
32. Are narrations or scripts technically correct and appropriate?	____	____	____
33. Does the media presentation attract and maintain the student's attention?	____	____	____
34. Is the speed of the presentation compatible with the student's learning speed?	____	____	____
35. Is the type of media realistic in terms of available media equipment?	____	____	____
36. Is the length of the presentation realistic?	____	____	____
OVERALL CONSIDERATIONS			
37. Are new words defined and used consistently throughout the module?	____	____	____
38. Is the language technically and grammatically correct?	____	____	____
39. Is the language written on the learner's reading level?	____	____	____
40. Is the module internally consistent so that the objectives, activities, and evaluation techniques do not conflict?	____	____	____

	YES	NO	NA
41. Are safety precautions and instructions provided?			
42. Is the module free of bias (age, sex, race, etc.)?			
43. Are the materials contained in the module easy for students to identify and use?			
44. Is the time required to manage and utilize the module reasonable?			

TEACHER'S GUIDE

45. Does the teacher's guide contain:

	YES	NO	NA
a. Introduction or Rationale			
b. Objectives or Competencies			
c. Listing of Teaching/Learning Materials			
d. Lesson Outline			
e. Interaction Items			
f. Learning Activities			
g. Evaluation and Key			
h. Suggested Instructional Methods			
i. Media Narration/Script			

TEACHING/LEARNING MATERIALS

	YES	NO	NA
46. Are required audiovisual materials listed?			
47. Are student or instructor references suggested?			
48. Is needed lab or demonstration equipment given?			

SUGGESTED INSTRUCTIONAL METHODS

	YES	NO	NA
49. Are several alternative teaching methods or techniques suggested?			
50. Are appropriate demonstrations recommended?			
51. Do special shop, lab, or classroom arrangements improve the use of the module?			
52. Are student activities described?			
53. Is a schedule for student progress through the course or related modules provided?			

STUDENT EVALUATION OF THE LEARNING MODULE

COURSE: ____________________

MODULE TITLE: ____________________ NUMBER: __________

INSTRUCTOR: ____________________

DATE: ____________________

SCHOOL: ____________________

TIME SPENT ON MODULE: ____________________

ATTEMPTED PRETEST ______ YES ______ NO

PASSED PRETEST ______ YES ______ NO

PASSED POSTTEST ON FIRST ATTEMPT ______ YES ______ NO

INSTRUCTIONS: Please read each of the following statements. Circle the symbol on the right of each statement that most nearly represents your opinion of this module. The symbols are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in the revision of this module!

INTRODUCTION

1. The introduction indicated to me why this module was important and how it related to previous modules. SA A U D SD NA

OBJECTIVES

2. I understood each of the module objectives before I began completing the module. SA A U D SD NA

3. I felt that the objectives were important. SA A U D SD NA

4. The objectives indicated what I was to achieve, how I was to achieve and what was acceptable achievement. SA A U D SD NA

PROCEDURES

5. The procedures indicated the steps I was to follow in completing the module. I knew what I was to do. SA A U D SD NA

6. The procedures indicated options that were available to me. SA A U D SD NA

INFORMATION SHEETS

7. Information sheets provided me with all the information needed to complete the module. SA A U D SD NA

8. The information sheets were written so they were easy to understand and follow. SA A U D SD NA

9. The illustrations accompanying the information sheets were helpful in clarifying the information. SA A U D SD NA

LEARNING ACTIVITIES

10. The learning activities were clear and assisted me in achieving the objectives. SA A U D SD NA

11. The learning activities were boring. SA A U D SD NA

12. Opportunities to apply or practice what I learned were provided. SA A U D SD NA

EVALUATION

13. I was aware of my progress as I proceeded through the module. SA A U D SD NA

14. I felt the tests measured my achievement of the objectives. SA A U D SD NA

15. The tests contained clear directions; I knew how I was to respond to each item. SA A U D SD NA

16. The checkpoints, checklists, and/or self-tests helped me determine if I was ready for the tests. SA A U D SD NA

MEDIA

17. The media presentation moved too fast for me to learn the materials. SA A U D SD NA

18. The media presentation was too long. SA A U D SD NA

19. The picture quality was good. SA A U D SD NA

20. The sound quality was good. SA A U D SD NA

21. The picture matched the sound content. SA A U D SD NA

22. The media presentation followed a logical order. SA A U D SD NA

23. The media equipment operated properly. SA A U D SD NA

24. The media equipment was easy to use. SA A U D SD NA

25. The media equipment was available when needed. SA A U D SD NA

26. The media presentation helped me understand the content. SA A U D SD NA

27. The media presentation was interesting to me. SA A U D SD NA

OVERALL

28. New words were defined throughout the module. SA A U D SD NA

29. I would prefer this approach to learning be used more frequently. SA A U D SD NA

30. The instructor was available for assistance when needed. SA A U D SD NA

31. The things I liked best about this module were: ______________________________

____

____

32. The things I liked least about this module were: ______________________________

____

____

CONSULTANT: ____________________ MODULE NUMBER: ____________________

DATE: ____________________ MODULE TITLE: ____________________

CONSULTANT'S EVALUATION OF THE LEARNING MODULE

INSTRUCTIONS: Please read each of the following statements. Circle the symbol on the right of each statement that most nearly represents your opinion of this module. The symbols are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in the revision of this module!

NOTE: If you answered U, D, or SD, please explain below in more detail.

---

1. The objectives of the module are representative of the knowledge, attitudes, and skills required. SA A U D SD NA

2. The module contributes toward the achievement of the stated objectives. SA A U D SD NA

3. Information sheets and media narrative contain up-to-date and accurate information. SA A U D SD NA

4. The module information pages and the media script followed a logical and smooth flowing order. SA A U D SD NA

5. Learning activities are representative of the experiences needed to achieve the objectives. SA A U D SD NA

6. Work procedures outlined in information sheets or shown in media presentation are comparable to industry requirements. SA A U D SD NA

7. The module is free of material which will quickly become dated. SA A U D SD NA

8. Correct safety practices and procedures are followed throughout the module. SA A U D SD NA

9. Self checks and/or check lists are technically accurate and complete. SA A U D SD NA

10. The module is free of sex or race bias. SA A U D SD NA

11. What content should be added to this module?

12. What content should be deleted from this module?

13. How could this module be improved?

MEDIA SPECIALIST EVALUATION OF THE LEARNING MODULE

MODULE TITLE: ______________________________ NUMBER: ______________

INSTRUCTIONS: Please read each of the following statements. Circle the term on the right of each statement that most nearly represents your opinion of this module. The terms on the right are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in our revision of this module!

NOTE: If you answered U, D, or SD, please explain below in more detail.

SCRIPT

1.	Narrative is free of excess verbage.	SA	A	U	D	SD	NA
2.	Narrative is adequate to explain visuals.	SA	A	U	D	SD	NA
3.	Correct grammar and pronunciation is used.	SA	A	U	D	SD	NA
4.	Narrative has a logical sequence.	SA	A	U	D	SD	NA

DELIVERY-NARRATION

5.	Voice is pleasant to listen to, easy to understand, and appropriate for the audience.	SA	A	U	D	SD	NA
6.	Voice is forceful, sincere, and emphasizes important points.	SA	A	U	D	SD	NA
7.	Rate of narration is appropriate to the complexity and nature of the visuals.	SA	A	U	D	SD	NA
8.	Pauses in narrative are effective.	SA	A	U	D	SD	NA
9.	There are no distracting background noises.	SA	A	U	D	SD	NA
10.	Music inserts are appropriate.	SA	A	U	D	SD	NA
11.	Advance tones are audiable, but not objectionable.	SA	A	U	D	SD	NA

VISUAL

12.	Visuals were in focus and of the proper exposure.	SA	A	U	D	SD	NA

13. Visuals are relevant and add to the narration of the script. SA A U D SD NA

14. Visuals emphasize the center of interest and do not contain a lot of irrevelant materials. SA A U D SD NA

15. Title slides are attractive, easy to read, and do not contain excessive verbage. SA A U D SD NA

16. Visuals establish and follow a motif; such as type styles, use of color, illustration style, etc. SA A U D SD NA

17. Arrows, outlining, color contrast, and etc. add emphasis to the illustrations. SA A U D SD NA

18. A variety of long, medium, and close shots are used for emphasis and variety. SA A U D SD NA

19. The camera angle is appropriate for subject. SA A U D SD NA

20. The presentation is free of bias (age, sex, race, etc.). SA A U D SD NA

21. Visuals content is free of safety or health hazards. SA A U D SD NA

22. Suggestions for improvement. ____

____

____

____

23. Outstanding characteristics. ____

____

____

____

SAMPLE EVALUATION ITEMS

Cognitive Domain

Agriculture

__B__ 10. What type of soil would likely have a low bulk density?

a. Soil low in organic matter
b. Soil high in organic matter
c. Soil high in clay content
d. None of the above

__D__ 11. When soil aggregates have a desirable structure, productivity of the soil is increased because of

a. easier air and water movement.
b. increased supply of water available for plant use.
c. easier movement of plant roots.
d. all of the above.

TRUE OR FALSE

__T__ 1. Most of the soils in the United States are classified as mineral soils.
__T__ 2. Silicon dioxide is the most predominant elemental compound in soil composition
__T__ 3. The organic matter content in an uneroded virgin soil will be higher than in a similarly tilled soil.
__F__ 4. Soils with many large pores tend to be waterlogged.
__F__ 5. Water in small pores is easily available to plants.

Health Occupations

3. Distinguish between perception and comprehension.

Perception - physical - image sent to brain from the eye. Depends mainly on physical functions.

Comprehension - intellectual - understanding of images sent to the brain.

4. Name six ways to improve comprehension.

a. Working crossword puzzles

b. Playing scrabble and other word games

c. Doing Reader's Digest special section "It Pays To Increase Your Word Power"

SAMPLE EVALUATION ITEMS

Cognitive Domain (continued)

Health Occupations (continued)

d. Looking up words in a dictionary

e. Using new words so they become part of your vocabulary

f. Reading well written material

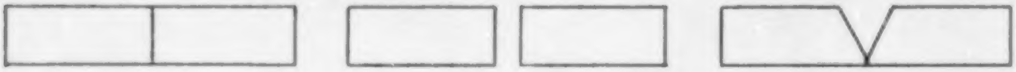
17. The term hematuria refers to BLOOD in the urine.

18. Osteoarthritis refers to inflammation of a BONE and joint.

Welding

Part I

1. Identify the following joints:



A. ______ B. ______ C. ______

6. What is the advantage of the closed butt joint over the open butt joint?

______

Business and Office

5 Points 5. Explain the procedure you would follow in organizing and writing a paper or article. Decide what you want for the subject and the points you want to cover. Research for information and make outline. Follow all the suggestions previously listed to improve readability.

SAMPLE EVALUATION ITEMS

Psychomotor Domain

Health Occupations

Call light	YES	NO
1. Located call light		
2. Activated call light		
3. Inactivated call light		
4. Placed the call light within reach for a patient in bed		
5. Placed the call light within reach for a patient in a chair		

79. Obtain tape and recorder from your instructor and correctly pronounce the following words, recording them on tape. Return tape to your instructor for evaluation.

    a. Endocarditis
    b. Dermatology
    c. Osteoarthritis
    d. Arterio Sclerosis
    e. Fascia

Welding

STUDENT EVALUATION

Butt Weld

Weld Characteristic	Unacceptable	Acceptable	Excellent
1. Metal properly prepared			
2. Machine properly adjusted			
3. Correct speed maintained			
4. Correct arc length maintained			
5. Correct electrode angle established			
6. Bead appearance smooth with uniform ripples, free of voids and high spots			

SAMPLE EVALUATION ITEMS

Psychomotor Domain (continued)

Business and Office

8. Write minutes of a hypothetical business meeting according to the following agenda. These should be written according to suggestions in the information sheet. They must be legible with correct spelling.

   a. Report of special committee for spring banquet.
   b. Scheduled events during Vocational Education Week, March 10-17.

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SAMPLE EVALUATION ITEMS

Affective Domain

Health Occupations

WRITING IN COMMUNICATION

Student Evaluation

Student Displays Evidence of:	SA 4	A 3	D 2	SD 1	NA 0
1. Good penmanship					
2. Trying to improve penmanship					
3. Awareness of importance of grammatically correct writing					
4. Effort to improve grammar					

Business and Office

9. Write two reports: one of a hypothetical convention and one of a single meeting or conference you attended following the suggestions in the information sheet. They must be legible with correct spelling. The convention report will be lengthy and you will need to use a cover page and begin each meeting on a separate page with a heading on each page. The informational content in each meeting report of the convention will be hypothetical and will not be part of your grade. The conference report will be short and headed accordingly.

Section IX

MEDIA SELECTION

Introduction

A variety of tools exists for communicating ideas. In the field of instructional and educational media, one must decide which medium or combination of media most effectively communicates the message and which delivery system is of the greatest convenience and expedience. The decision-making process will be influenced by budgetary limitations, equipment, and available resources including production capabilities and services of an audiovisual department.

To provide an effective mediated learning experience in light of definitive instructional objectives, proper media selection and utilization is paramount. Whether the selected materials are textbooks or other printed aids, audio visual combinations, or videotaped programs, selection is crucial.

"Robert Gagné, a psychologist, has been particularly interest in studying the conditions that facilitate learning. In the first edition of The Conditions of Learning, he summarizes the contributions of a variety of audiovisual and related media to such instructional functions as presenting stimuli, directing attention, guiding thinking, inducing transfer, providing feedback, and so." (Kemp, 1974)

The relationship between media selection and instructional needs essentially must match that which is to be communicated with the learners and their characteristics.

Selection of Media

In presenting the eight types of media, (Garlack and Ely, 1971), it is important to note that more than one presentation mode usually can be used to distribute the same medium. Following is a detailed description of each of these eight types.

1. Real things - This category includes people, events, objects and demonstrations. Real things, as contrasted with other media, are not substitutes for the actual object or event. They are, in fact, life itself, often in its natural setting.

2. Verbal representations - This category includes printed materials, such as textbooks and workbooks. Projected words on slides, filmstrips, transparencies, or motion pictures also belong in the category. (Audio verbal representations are discussed below.)

   Chalkboard notations, titles on bulletin boards, or any written or printed words used to convey an idea, skill, or attitude are included. The printed word is the most common verbal representation, but oral verbal representations are also common media.

   Verbal representation is frequently used in combination with other media, for example, captions on filmstrips, printed guides which accompany audiotapes for language instruction, or sound tracks on films. The output of computer consoles used for computer assisted instruction is verbal representation whether it is printed or in graphic form displayed on a cathode ray tube associated with the computer console.

3. Graphic representations - Charts, graphs, maps, diagrams, drawings--any renderings produced with an intent to communicate an idea, skill, or attitude--are included here. Graphic representations may appear in textbooks, in programs for self-instruction, on wall displays, on a filmstrip frame, or on an overhead transparency.

4. Still pictures - Photographs of any object or event constitute still pictures. Photographs may appear as textbook illustrations, bulletin board materials, slides, filmstrip frames, or overhead transparencies. A still picture is a record or a copy of a real object or event which may be larger or smaller than the object or event it represents. Even though there is no motion, it may be suggested, such as in a still picture of a boy running toward first base. It may be in color or black and white.

5. Motion pictures (including television) - A motion picture or videotape recording is a moving image in color or black and white produced from live action or from graphic representations. Objects or events may be in normal motion, slow motion, time-lapse, or stop motion. Objects or events may be edited for abbreviating or highlighting. Film or videotape may be silent or with sound.

Sound may be synchronous with the visual portion or may be narrated "over" the action.

6. Audio recordings - Recordings are made on magnetic tape, on discs, or on motion picture sound tracks. These are reproductions of actual events or of sound effects. Sounds are genuine and are presented in the sequence in which they actually happen unless the recording is edited. Obviously, one of the most important types of audio recording is of verbal material.

   Audio recordings may be used by individuals, played directly to an audience, or presented over radio or a central sound system.

7. Programs - Programs are sequences of information (verbal, visual, or audio) which are designed to elicit predetermined responses. The most common examples are programmed textbooks or instructional programs prepared for teaching machines or computers.

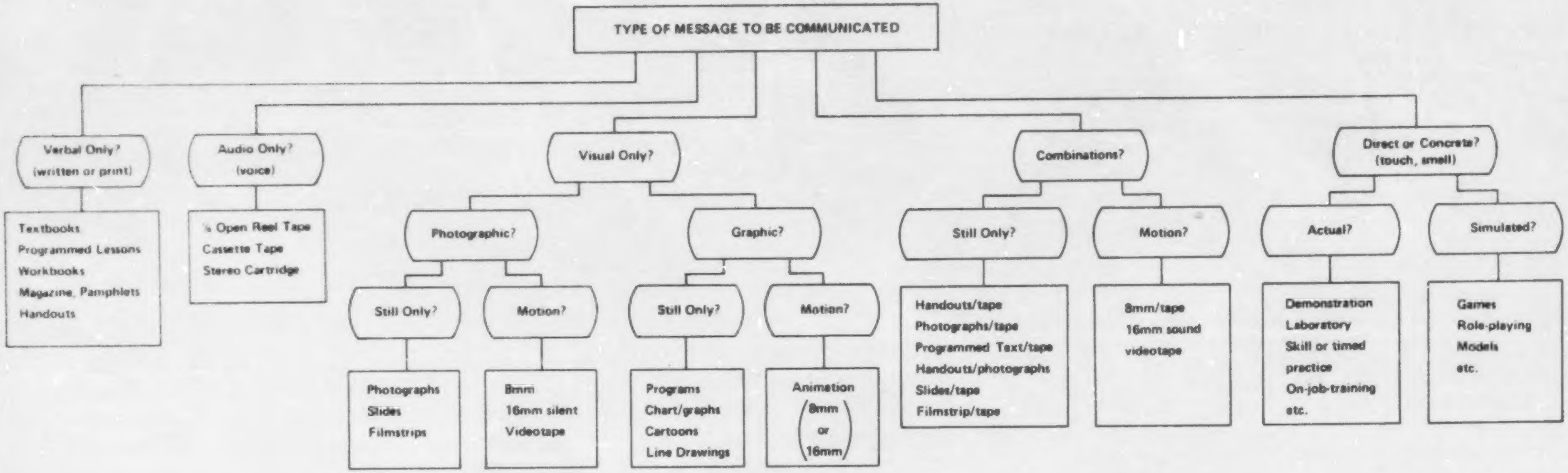
   The presentation of information is made through any one medium or combination of media, e.g., printed words, slides and tapes, motion picture sequences, and filmstrips. An active response is required of the learner before new information appears. The learner is informed immediately of his success or failure. Some programs (branching type) build in remedial units for responses which are incorrect.

8. Simulations - Simulation is the replication of real situations which have been designed to be as near the actual event or process as possible. Examples would be the use of a simulated driver's position in an automobile with road conditions presented on the screen. Educational games which simulate economic or geographic conditions demand active decision-making on the part of the learner. Many media, including the computer, tape recordings, motion pictures, slides, and objects, can be used in simulation.

Systems of Selection

Different selection processes exist; one may either research those available or utilize an original systematic selection. If an audiovisual or media production department is available, consultation with that area is an obvious starting point. An indication of materials and resources available, production capabilities, production and scheduling restraints, and staff assistance need to be investigated.

Selection should be made according to the interaction of elements within the learning environment. Such factors are relevant to the style of the teacher, learning conditions of the student, interpersonal relationships (student-to-student, student-to-teacher), and personal growth and achievement of students. Within individualized instruction, independent study for independent students is utilized as depicted in the following figure.


TYPE OF MESSAGE TO BE COMMUNICATED
Verbal Only? (written or print)
Audio Only? (voice)
Visual Only?
Combinations?
Direct or Concrete? (touch, smell)
Textbooks
Programmed Lessons
Workbooks
Magazine, Pamphlets
Handouts
¼ Open Reel Tape
Cassette Tape
Stereo Cartridge
Photographic?
Graphic?
Still Only?
Motion?
Actual?
Simulated?
Still Only?
Motion?
Still Only?
Motion?
Handouts/tape
Photographs/tape
Programmed Text/tape
Handouts/photographs
Slides/tape
Filmstrip/tape
8mm/tape
16mm sound
videotape
Demonstration
Laboratory
Skill or timed practice
On-job-training
etc.
Games
Role-playing
Models
etc.
Photographs
Slides
Filmstrips
8mm
16mm silent
Videotape
Programs
Chart/graphs
Cartoons
Line Drawings
Animation
8mm
or
16mm

In the selection process it is essential that the medium selection fit the application. The following factors should be considered.

1. Objectives. The medium of instruction should be selected on the basis of its potential to assist the student in reaching the stated objective.

2. Visuals. The more concrete the material, the more important is visual representation of it.

3. Student control. Is it necessary for the student to control the pace of the unit? Should the student be able to go back in the presentation for a second look or advance ahead.

4. Action. Is it necessary to show motion to fulfill the objectives? Often combinations of motion and stills are necessary for effective communication or depiction of ideas or abstract concepts.

5. Sound. Is sound necessary? The sound may either be narrative, background music, and/or necessary sound effects. Sound tapes alone may effectively communicate certain lessons.

6. Color. Must visuals be viewed in their true colors or is depiction in black and white sufficient?

7. Edit ability. Should the medium be easily edited? Editing may be necessary for updating with new information. The deletion of old ideas or erroneous concepts can be completed more easily in some media than in others.

8. Flexibility. If the presentation is limited by restrictions of size, weight, or transportability, it is not flexible. Students may need to use the lesson at home or in a mobile location or situation.

9. Quality. The audio and visual quality of the final product must be considered in the selection of instructional media.

The Media

Due to the delivery system inherent in different media, some are better suited for group use than for individualized use. Some are quite costly while others are less expensive. However, it is necessary to realize that a particular medium may be expensive in its initial cost investment in hardware, while related software proves more economical in the long run. For example, videotapes (i.e. videocassettes) are economical in light of the reuse factor. They can be erased and another program can be recorded on the tape. Purchase of video production equipment is expensive and hardware is constantly under improvement and innovation.

In contrast, printing costs are relatively less expensive, often one-half cent a page. However, colors, additions of illustrations, and heavier stock can increase printing costs greatly.

It is difficult to assess actual prices to each specific medium. In light of market fluctuations of hardware and software costs, institutionally available resources, and specific instructional needs, it would be inaccurate to assess dollar figure amounts. Rather, the following chart lists media most appropriate for independent learning. Since it is ranked from the most economical to the most expensive to produce, one can realize general practicalities, utilization factors, and costs.

The time factor is a basic consideration in media selection. Essentially, audiotapes and videotapes are the fastest to produce when little or no extensive post-production work is necessary. Master material can be recorded and immediately played back for listening or viewing. There is no film to develop or process as there is with slides or motion picture film.

Print materials are subject to market supply and demand and price fluctuations. Printers and publishers are subject to seasonal rushes which may delay dated material. To minimize problems, instructors should become familiar with publishing policies and schedules.

It is generally a good practice to get to know any and all suppliers of media products. Retail wholesalers may provide substantial discounts; manufacturers may not.

A difficult area to pinpoint is exact costs for developing mediated presentations. In the area of sound and video production, once initial capital investments in hardware have been made, long-run operating costs can be mitigated through life expectancy of equipment. Software can be purchased in bulk; audio and videotape can be "erased" and reused, thus increasing cost-value effectiveness. Market prices seldom fluctuate; they always increase.

Motion picture film and still photography equipment are investments equitable to audio and video purchases. However, software is expensive and has an extremely low reuse factor. Once film is shot, it cannot be changed, and it deteriorates after multiple showings.

Offset printing presses are expensive to purchase and maintain. Supplies such as ink and paper stock can be expensive and cannot be reused.

When one establishes a comfortable relationship with media resources available, understands the potential results, and accrues the support of the production department (if one exists), it is necessary to return to the instructional objectives to assess and determine the media needs.

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Garlach, Vernon S. and Donald P. Ely Teaching and Media: A Systematic Approach. New Jersey: Prentice-Hall, Inc., 1971.

Kemp, Jerrold E. Selecting Media for Learning, "Which Medium?". AECT, 1974.

Section X

SCRIPT WRITING

Introduction

The focal point of the instructional program is what is being said. The available media are the delivery system which provides mechanically "how" something is said. The idea communicated, whether it be narration, printed information, or demonstration, is the core of the communication.

How the information is communicated to the individual learner in terms of language, grammar, sentence structure, and logic ultimately affects the behavior desired. The success or failure of the presentation to achieve the instructional objectives rests in the script.

Script Content Organization

The script content will be organized in much the same way as the information sheets of your module discussed in Section VI of this manual. The type of content information will dictate the organization of the subject matter.

Scripts in which the student is to grasp a concept may be organized several ways, such as chronological (that is, from past to most recent events). Your content may suggest that you start by reviewing basic ideas, presenting more detailed and complicated information and finally tying these simpler ideas together to build a complex principle.

When a presentation shows how to perform a skill or task, you will probably want to base your script on the steps and sequence required to perform that skill or task.

No matter how the content is organized in the script, you must start with your basic task and instructional analysis as presented earlier and outlined below.

1. List the tasks or competencies.
2. Analyze each task or competency to identify the specific skills, attitudes, or information topics required to perform that task or competency.
3. Arrange these skills, or information topics, in a sequence as you would teach them in the classroom (make your outline).
4. Add to this outline the basic facts that explain each topic and the basic steps in performing that skill.
5. Determine the shots and accompanying narrative needed to explain these facts or steps.

Script Format

Your script will again have a format similar to that of the information sheets. You should have an INTRODUCTION, a BODY, and a CLOSING.

Your introduction serves to build students' interest, make them aware of what will be studied, and emphasize what they should learn. The following shot sequence is preferred as shown in the example storyboard.

1. Media Center LOGO
2. Presentation title slide
3. Two-four topic introduction or motivational slides
4. Objectives slides

The body presents the skills and knowledge the students are to master.

The closing re-emphasizes or summarizes the important points the students are to obtain from the presentation, and may introduce the next module. It will generally include:

1. Five-ten summary slides
2. Credit slide
3. Rewind reminder slide

Shot Description

You will generally use three types of shots in your presentation.

These are:

1. Title slides
2. Graphics or illustrations
3. Live shots

Title shots add professionalism and clarity to your presentation. These may introduce individual sequences within the slide series, or give special emphasis to facts or ideas. Do not use title slides to present material that can just as easily be read in a handout, such as a list of items to be memorized. If necessary, have the students stop the tape and refer back to their manuals. Do not present so much written material that students will be attempting to read the slide instead of listening to the narration. Try to identify novel ways of presenting your title slides, such as street signs.

Often, because of simplification, illustrations or artwork can be used to a better advantage than pictures of the actual subject. For example, parts of a subject can be easily highlighted. Give a rough sketch of your idea on the script, and possibly a reference where the illustrator can look up what you want drawn. Again, remember that if you need a complex or detailed illustration, it may be better to present this in the module information sheets.

You must give the media specialist an idea of what you want in the live shot by:

1. identifying the center of interest, such as an object or person, and
2. describing the action taking place.

For example, what is the person supposed to be doing?

You should also decide how you want your audience to see the presentation. Are they to see it as an observer would or do you want them to get the feeling they are performing the action?

The objective camera photographs the action as an observer. The viewer would see the presentation similarly to watching a demonstration by the instructor.

The subjective camera photographs the action by shooting over the performer's shoulder. Viewers see the action as they would if they were performing the job themselves.

By photographing the action from several distances and angles, variety is provided, interest is maintained, and your audience attention can be better directed to the specific idea you are presenting.

whole hospital room	Long Shots (LS) are sometimes called establishing shots. They provide a general view of the setting and subject which provides an orientation for the viewer. Long shots make good opening shots. They are also used between internal slide sequences to relate parts back to the whole.
hospital bed	Medium Shots (MS) provide a closer view of the subject while leaving out unnecessary background. This allows the camera to concentrate on the main elements of the scene.
foot of bed	Close-Ups (CS) permit one element to dominate the scene. They emphasize details. Close-ups are also good for showing emotions, and facial expressions.
corner of bed sheet	Extreme Close Up (ECU) are used to magnify small but important details.

Eye Level Shots are easy for the viewer to identify with because they present a normal perspective of the subject.

High Angle Shots look down on the subject and tend to reduce its importance.

Low Angle Shots tend to dramatize the subject and emphasize their importance. Things often appear larger or more massive.

Writing the Script

A good script begins with a good outline. This will insure that you include all major ideas, establish the proper emphasis, and develop a smooth and logical flow of ideas. Write as though you were talking to a student, and as you write think of what visual you need to go with your narration.

EDIT! Do not write more than is needed to make your point, and do not hide wordy sentences by adding "filler" shots that have no meaning. Use words that are familiar to your audience. Be sure new terms are explained or defined. Write simply; that is, avoid long, complicated sentences that may hinder your audience's understanding of what is said.

Two forms may be used for writing scripts. These are cards, on which one shot is described and narrated on each card, and pages, on which three to five shots are described and narrated on each page.

When cards are used, it is easier to add shots and narrative, rearrange shot sequence and edit or replace shots and narrative. The beginning script writer may find it best to use cards, while the experienced script writer will probably prefer to use pages. Regardless of which you use, remember to include:

1. slide number
2. the subject
    a. center of interest
    b. action
3. camera angle
4. shooting distance

In developing a presentation, the writer should consider the following factors.

Know the Audience; Empathize with the Student

Age. For which age group is the presentation directed? Is it a general or specific audience? Are prerequisite courses required? Remember, YOU know the material, the student does not, and it must be communicated in terms easily understood.

Bias. Avoid sex bias and stereotyping. Do not cast females only in traditionally female dominated roles such as health or business occupations. In turn, do not cast males solely in occupations or skills traditionally male-oriented.

Example: The welder should be sure to clean his work area when finished.

Such a statement suggests that women are not welders; moveover, the visual (or visuals) should not portray only males. Use variety and write a "neutered" statement.

Example: The welder should be sure to leave the work area clean when finished; or
Welders should be sure to leave their work areas clean when finished.

In this way sex role is eliminated and no one gender is cast as welders.

Write in One Point of View

Select one viewpoint in writing and maintain it within the program. In individualized instruction, the second person singular "you" is personal and the viewer will feel the program is "directed to me," even in small or large group viewing. The use of "you" gives the program immediacy and a sense of timeliness.

Example: You should now be able to operate the dictation machine.

It is not necessary to express "you, the student." The expression "student" is impersonal, and since the individual is viewing the program, a student must obviously be present.

Avoid the use of "I."

Example: I will now demonstrate the procedure....

The use of "I" alienates the student and may be interpreted in the above sentence as "talking down". Below is an example which is well written.

Example: The following procedure will demonstrate the accepted method of....

Use Technical Language Correctly

Technical language germane to a specific discipline (scientific or medical) is common to the writer but foreign to the student. When narrating, say the word more slowly or repeat it with emphasis. If the writer does not narrate the program, be sure to include a pronunciation key for technical terms.

Example: In the mouth, ptyalin (tie'a lynn) found in saliva begins to change carbohydrates into sugars.

Write out Numerical Expressions

These should be written out so the narrator knows how the writer wants them pronounced.

Example: 125.0076 liters

The above could also be written as follows.

Example: one hundred twenty five point zero zero seven six liters, or

Example: one hundred twenty five and seventy six one hundred thousandths liters

Write out Abbreviations/Acroynms

These can be used in visuals but need to be reinforced in the audio; in printed materials, they need to be written out.

Maintain Continuity

Link ideas and arrange concepts and information with logical transitions and progression. The copy (narration, et al.) should be written succinctly to communicate the message clearly, concisely, and completely.

Accompany Copy with Visuals

The amount of time necessary to comprehend visual information is relative to the complexity or simplicity of the information. Therefore, visuals containing written information, schematics, or diagrams, need to be seen longer than simple concepts, ideas, or scenes. It is generally more effective to have too many visuals than too few to maintain viewer interest. A general rule is to hold a simple scene visually four to six seconds while more complex visuals should be displayed long enough to be read or understood.

Write for the Format

A video program, slide/tape, filmstrip, or motion picture film requires a script and storyboard for production. A storyboard is a form which provides boxes in which visual representations designed to reinforce or represent concepts (sketches, stick figures, diagrams, scene descriptions) can be placed. Following this section is an example of a storyboard.

To effectively write a script, one need not be a professional media producer; one merely needs a sense of visual literacy which helps match visual thoughts clearly and logically with concepts to be learned.

EXAMPLE 1 - FORMAT - OPENING SEQUENCE

Production Title: PRINCIPLES OF BEDMAKING #230

Project/Department:

Producer:

Media Specialist:

Writer:

Page 1 **of**

	Video	Audio
1.	from stock MEDIA CENTER LOGO (or focus slide)	This is a Media Center Presentation of State Fair Community College, Sedalia, Missouri
2.	Kodalith Title Slide Principles of Bedmaking Module H078-230	Slide/tape presentation, Principles of Bedmaking, number 230, for the course Fundamentals of Nursing.
3.	live shot Picture of a person in messy, untidy hospital bed.	If you have ever lay in bed for a straight 24 hours, you realize the importance of a clean, well-made bed. A poorly made bed can be very uncomfortable.

EXAMPLE 1 - FORMAT

Production Title: ____________ **Project/Department:** ____________

Producer: ____________ **Media Specialist:** ____________

Writer: ____________ **Page** 2 **of** ____

	Video	Audio
4.	live shot Shot of nurse making bed	As a nurse, you can help your patient by knowing the principles of bedmaking.
5.	Kodalith OBJECTIVES 1. Describe the 7 articles of linen used in making hospital beds. 2. Describe the four common types of hospital beds.	After completing this lesson you should be able to: 1. Describe the 7 articles of linen used in making hospital beds. 2. Describe the four common types of hospital beds.
6.	Kodalith 2. Describe the four common types of hospital beds. 3. Identify the principles of maintaining the comfort and safety of the patient and the nurse when making hospital beds.	3. Identify the principles of maintaining the comfort and safety of the patient and the nurse when making hospital beds.

EXAMPLE 1 - FORMAT - CLOSING SEQUENCE

Production Title: ____________ **Project/Department:** ____________
Producer: ____________ **Media Specialist:** ____________
Writer: ____________ **Page** 36 **of** ____

	Video	Audio
08.	an open unoccupied bed (same as #67)	In this lesson you have learned the principles of making the unoccupied bed,
09.	a post-operative bed (same as #72)	the post-operative bed,
10.	an orthopedic bed (same as #83 or 87)	the orthopedic bed,

EXAMPLE 1 - FORMAT

Production Title: ____________ **Project/Department:** ____________

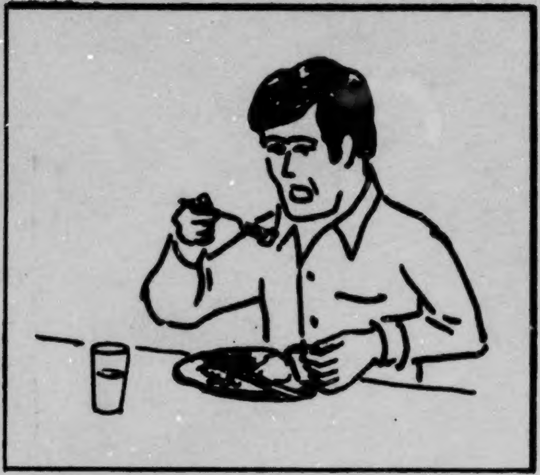
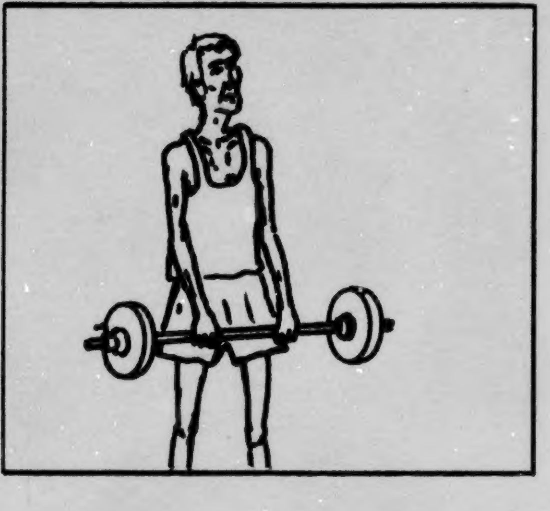
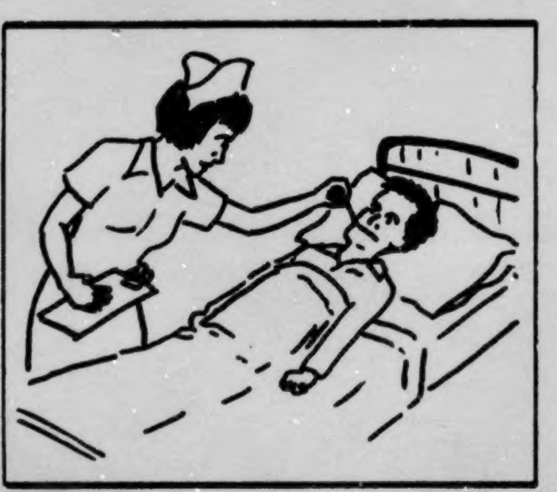
Producer: ____________ **Media Specialist:** ____________

Writer: ____________ **Page** 37 **of** _____

	Video	Audio
11.	an occupied bed (same as #90)	and the occupied bed.
12.	Kodalith WRITTEN BY: Jan Striepe PRODUCED BY: Charlie Cogar TECHNICAL ADVISOR: Sandra Richardson	This presentation was written by Jan Striepe and produced by Charlie Cogar with Sandra Richardson as technical advisor.
13.	from stock Please rewind the tape and return all materials to their storage area.	You have reached the end of this presentation, Principles of Bedmaking, number 230. Please rewind the tape and return the materials to the proper storage area.

EXAMPLE 2 - VISUAL DESCRIPTIONS

Production Title: ______________ **Project/Department:** ______________
Producer: ______________ **Media Specialist:** ______________
Writer: ______________ **Page** _____ **of** _____

Video	**Audio**
4. 	In this module we will begin a much closer examination of the function of these structures which digest the food we consume.
5. 	This topic is important since unless our food is digested properly, it will be unsuitable for use by our bodies.
6. 	Information presented in this lesson should do more than contribute to your understanding of clinical conditions which deviate from the norm.

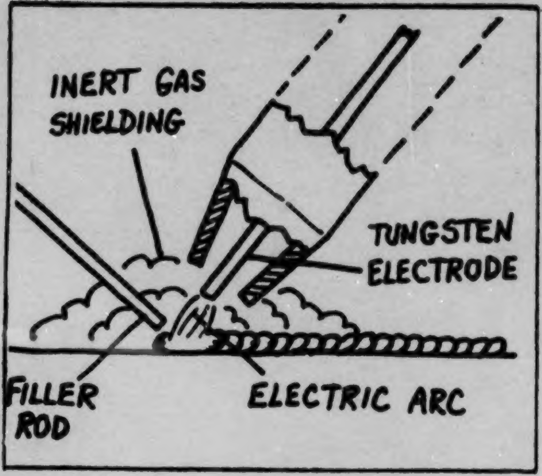
Production Title: ______________________________

Production Number: ______________ Project/Department: ______________

Writer: ______________ Media Specialist: ______________

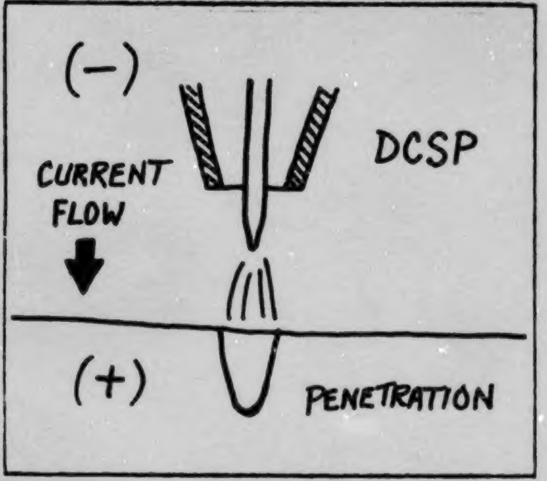
Date: ______________ Page ____ of ____

Video | Audio

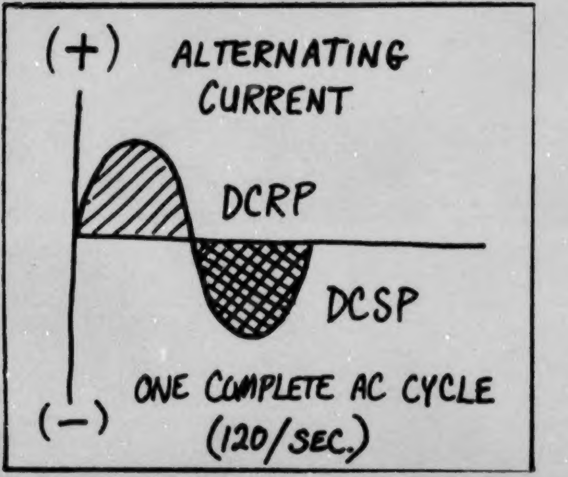

INERT GAS SHIELDING
TUNGSTEN ELECTRODE
FILLER ROD
ELECTRIC ARC

The following essentials of the tig welding process come together in the weld zone. The tungsten electrode which is nonconsumable at arc temperature. Inert gast which provides shielding from air. The electric arc that melts base metal and filler rod. The filler rod which is fed into the puddle by hand.

(PAUSE 5 SECONDS)


(–)
CURRENT FLOW
DCSP
(+)
PENETRATION

DC-Straight Polarity produces a narrow weld zone with deep penetration as the electrons strike the base metal at high speed.


(+)
ALTERNATING CURRENT
DCRP
DCSP
(–)
ONE COMPLETE AC CYCLE (120/SEC.)

Tig welding may also be performed with AC current. Alternating current is constantly changing direction back and forth alternating between DCRP and DCSP. AC changes direction 120 times per second.

Production Title: ______

Production Number: ______ Project/Department: ______

Writer: ______ Media Specialist: ______

Date: ______ Page ___ of ___

Video	Audio
KODALITH Advantages of tig welding 1. No fluxes needed	There are advantages to tig welding which make it possible to produce superior welds. These include: 1) fluxes are not required during welding and this corrosive residues do not have to be removed after welding.
KODALITH Advantages of tig welding 1. No fluxes needed 2. Less distortion	2) Distortion of the base metal is reduced due to the narrow weld zone.
KODALITH Advantages of tig welding 1. No fluxes needed 2. Less distortion 3. No smoke or spatter	3) There is no smoke or spatter to interfere with the welding vision.

Motion Picture Film/Videotape Script Variations

A storyboard script is also very essential for a film or video production. Most of those factors discussed previously about slide production are still pertinent for production depliciting motion. However, more information or directions must be provided for the media producer.

When developing a slide script, each visual discription on your storyboard indicated a specific shot you want such as a closeup of the on/off switch on the typewriter. For a film or vider production, the visual description must explain a series of movements or an action such as a person getting up from a desk, walking cut and angerly slamming the door. Since more facters are involved, a number of special instructions must be provided. This will eliminate confusion by letting the camera operator(s) and other participants know what is involved and what you are trying to show. Your script should provide:

1. What is the action in the shot? What are the main individuals doing, or what action are you trying to show. For example, the machine operator pulls lever A and pushes B when the red light goes off. Often it is best to include a simple drawing or sketch of the action as well as the written description.

2. What type of a shot is it? Do you want a long shot (LS) of the room, a medium shot (MS) of the person, or a closeup (CU) of the persons face? You may also want to indicate if it is an eye level, high angle, or low angle shot.

3. What is the camera doing? There are various camera actions that the script writer may include. These are explained in a later portion of this section. For example, you may wish to specify how the camera is to follow the person (pan) or when to let the person walk out of the picture.

4. What type of transition is used? How do you want to get from one shot sequence to the next. If you shut off the camera with a person in the middle of a scene and then go to a similar scene, the person will seem to suddenly disappear or pop out of the picture. You should try to match the action from one scene to the next. For example, if you have several shots of a person at a table, the persons hand can not be on the table at the end of one shot and holding a cup to their mouth in the beginning of the next scene. There are a number of ways discussed later to move from one scene to the next such as a pan, cut, or fade.

5. What is the narrative? What do you want to say along with the picture? Are there sound effects such as a machine running or music to be included? What do you need to explain or emphasize? Is the narrative close to the same time length as the visual.

6. How much time is required for the shot? Try to visualize how long it will take to shoot the action taking place. You may wish to time someone as they go through the action called for in the script.

There are a number of camera actions that should be included and specified when writing your script. These will make your film or videotape appear more natural, improve continuity from one shot to the next, and provide a way of emphasizing important points. The specific affects you may use will depend upon the capacity of your particular camera. These may include:

1. Cut - (on/off) The camera operator simply shuts off the camera at the end of the shot, and then the next shot is set up. When making a cut, the action in the shot should have ended.

2. Pan - A horizontal, sideway, movement of the camera. For example, the camera may pan from one person to another during a conversation. A swish pan is a fast movement of the camera so that the scene between the first and last picture appears blurred. This is one way of connecting two separate but related scenes.

3. Tilt - a vertical, up and down, movement of the camera such as following an object falling off a table. This camera action has very limited use.

4. Truck - The camera is moved in toward an object or out away from the object making it appear larger or smaller and more or less dominant in a scene. This action can be used to go from a medium shot to a closeup without changing the perspective.

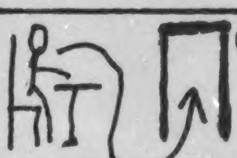
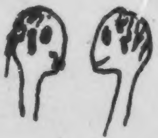
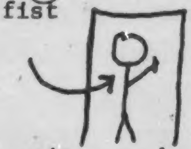
5. Dolly - The camera is moved along parallel to a moving object. For example, as a car moves down the street, it will appear to become larger and slow down as it approaches a camera, and then speed up and get smaller as it moves away from a stationary camera. However, if the camera is moved along parallel to the car, its speed and size will remain relatively constant.

Production Title: ______________________

Production Number: ____________ Project/Department: ____________

Writer: ____________ Media Specialist: ____________

Date: ____________ Page ____ of ____

Video	Audio
①  ⑥ 20 seconds ② M5 of person getting up and walking out of resturant door ③ Camera pans to follwo student as walks out door	⑤ Background noise - blurred conversation with music John to waiter: Excuse me, I left my billfold out in my car (background conversation fades)
④ Cut to	
①  ⑥ 10 seconds ② CU of person in room reacting to John's action ③ Camera zooms in on persons	⑤ That guy is running out on his bill. I don't blame him the way this food tastes. (background conversation increases)
④ Pan to	
① Waiter standing in door waving fist and yelling. ⑥ 10 seconds  ② M5 ③ Camera follows waiter as he looks out door ④ Fade out to back	⑤ Hey, come back here and pay your bill. You cheap crook. (laughter and music)

6. Fade - The amount of light entering the camera may be decreased so the picture goes from a normal exposure to black. Likewise, a picture may start from black and go to a normal exposure. This technique is sometimes used to indicate the passing of time in a scene.

7. Zoom - most cameras are now equipped with a zoom lens so that you can go from a normal shot to a closeup, or pull back from a closeup to a medium or long shot (reverse shot). The zoom action is similar to a truck action, except the zoom affect the perspective by foreshortening or making the shot look more compacted. The zoom shot should be used to emphasize some action. If it is overused in a production, it may lose this meaning. The reverse zoom may be used to tie one scene to the next scene.

8. Selective focus - the depth of focus can be used to change the center of emphasis. For example, if you have a number of people walking along the street, the individual you wish to emphasize should be in sharp focus while those near and far may appear somewhat fuzzy. This technique can be used to heighten audience interest as well as to show distance.

9. Slow or Fast motion - the film movement in some cameras can be speeded up or slowed down to make actions appear slower or faster than normal. Slow motion can be used to show details or to analize individual movements of someones actions such as the arm movements of a baseball pitcher. Fast motion is seldom used except to give a "comic" affect.

If you wish to spend the money, there are several lab effects which can be done with film by a commercial photography lab. These are briefly described. If you are interested in these effects, check with your lab to see what they can do and to determine their prices.

1. Supers - (or superimposition) one picture is placed on top of another. For example, you may wich to "float" your film title over a live action picture. You will probably need to supply the lab with a film of your title as well as the action.

2. Dissolves - One picture fades as another picture comes on. This may help to make two separate actions relate to each other. For dissolves, each action must be photographed separately and then combined in the lab.

3. Cropping - After viewing your film, you may wish to show only part of the actual picture. A lab may do this by cropping out top or bottom of the picture.

4. Special tints - Tints or colors can be added to a film by a lab such as blue, pink, reds, etc.

5. Exposure corrections - Often when a film is shot a various times and locations the exposure (darkness or lightness) will vary. Many labs are equipped to balance the light throughout the film.

6. Color balancing - When a film is shot under a variety of condition such as early morning, noon, and afternoon, the background colors such as the blueness of the sky may vary. A lab may be able to balance the color throughout your film.

As mentioned earlier, these lab effects are fairly expensive and probably prohibitive for the amateur photographer or media specialist working with a limited budget. They should be considered by the department producing professional quality presentations.

Production Tips for the Instructor who must Develop own Media

Title slides. Use titles to add professionalism and clarity to your presentation. Consider shooting street signs, billboards, or other ready made titles. If someone has not already made your title, you can make your own easily.

1. Use lettering on a colored background or fabric.
2. Place lettering over a full color picture (be sure color picture is high quality like those in Audobon or National Geographic).
3. Plastic three dimensional letters can be used, or rub-on transfer letters can be placed directly on a colored background, illustration, or on an acetate overlay.
4. Use an executive typewriter with large print on colored paper.
5. Use kodalith ortho film and zipatone to color lettering which will show up colored letters on a black background.

Use a slide series for progressive disclosure to help clarify.

Limit each slide from 15 to 20 words or 25 to 30 elements.

Include no more than you will discuss.

Leave space at least the height of a capital letter between lines.

Use several simple slides rather than on complicated one, especially if you must discuss a subject in length.

Narration

Narration explains details in the picture.

Narration may call attention to relationships within the picture.

Narration may indicate the center of attention or camera position.

Narration may raise questions.

Narration may serve as a transition from one scene to the next.

Narration must tell the same story as the picture.

Most emphasis should be given to the visual. The audio is secondary in importance. If a great number of words are required to describe the picture it indicates that the subject matter quality of the picture is poor.

Double space narration on the right half of the paper.

Triple space between slide changes. Use capital letters for the script and place in parenthesis any special instructions to the narrator such as (PAUSE), (LAUGH).

Underline words that the narrator should emphasize.

Never end the page in the middle of a sentence. End each page with a natural pause, preferably at a slide change location.

Select a quiet location with good accoustics for recording. Be sure there are no background noises such as doors shutting, machines running, people talking, etc. The inside of a car in a locked garage can be used.

When recording, keep the script pages loose. Do not bind or staple them together. Today's recording microphones are very sensitive, and they will record the sound of turning or shuffling paper if you are not careful in handling the script during recording sessions.

Do not pause in your commentary between slides, unless called for.

Make the commentary sound conversational.

Practice the commentary a couple of times--do not let is sound like a reading.

In certain instances music can add some polish to a presentation. The music must be fitting to the objectives of the presentation. Do not use music with lyrics while you are speaking. Beware of copyright infringement.

Two people can share in the commentary. Dialogues can be very effective.

Photography

Use simple, uncluttered set-ups of readily available equipment and facilities.

Examine scenes to be sure they show good examples of safety and/or sanitation. (e.g. be sure students are wearing safety glasses.)

If possible, use colorful cardboard arrows, spots, or captions in the picture to aid students in identifying the important elements of the scene.

Whenever possible, use close-ups to be sure that students can see the details, even on a very small viewing screen.

Make sure the students or other persons included in the photo are appropriately dressed and groomed.

Professional jobs will use all horizontal oriented 35mm slides instead of mixing vertical and horizontal shots.

Vary the shot. Use some long range, medium range, and close up shots.

When using magazine pictures to make color slides, be sure they are high quality.

Art work for 35mm slides should be in a 2 x 3 ratio.

It is generally best to have all color slides.

Use only high quality slides--do not use those underexposed, overexposed, cluttered, etc.

Use duplicates if you need to refer to the same slide at several different times in your talk.

The effectiveness of a slide series can often be increased by including the following kinds of scenes.

Enlarged subject detail
Reproduction of graphic materials
Reproduction of titles and subtitles

All three of the above shots require a closer than normal camera-to-subject distance. Most cameras are not suitable for close up and copy work unless special adjustments for focusing and viewfinding can be made.

The majority of cameras can be adapted for close up work with one or more supplementary lenses (close-up attachments) placed in a retaining ring and attached over the regular lens. Homemade or commercial focal frames and copying stands may simplify framing and focusing.

APPENDIX B

SAMPLE CURRICULUM ADVISORY COMMITTEE AGENDA, MEMBER LIST, AND MINUTES

State Fair Community College
and
Area Vocational School
Sedalia, Missouri 65301 Phone 816-826-7100

December 19, 1978

Robert Schwindt
Director, Media Center

Mr. Jim Watson
RMF Steel
8045 Indiana
Kansas City, MO 64132

Dear Mr. Watson:

Following the suggestions of the advisory committee at the 1977 November meeting, eight welding modules have been developed. We would now like for you as a member of this committee to assist in the review of these materials and in selecting additional modules for development this spring.

A dinner meeting of this committee has been scheduled for Thursday, January 11 at the Breckenridge Inn, I-435 and Front Street in North Kansas City. Dinner will start at 6:00 p.m. in the 3rd floor conference room. Please return the enclosed post card letting us know if you can or cannot attend.

The main purpose of this meeting will be to review developed materials, suggest revisions, and make recommendations for future materials to be developed. Your support and advice will be greatly appreciated.

Sincerely,

Gerald Evans

Gerald Evans
Welding Curriculum Specialist

GE:bb

State Fair Community College
and
Area Vocational School
Sedalia, Missouri 65301 Phone 816-826-7100

File

December 19, 1978

Robert Schwindt
Director, Media Center

Mr. Henry Ludwig
Crowder College
Neosho, MO 64850

Dear Mr. Ludwig:

Our welding curriculum advisory committee meeting has been set for January 11 at which time we will review materials developed over the past year and select modules to be developed during this coming spring. Since you have developed a module, we would like for you to attend this meeting if it will fit into your schedule.

We will meet on the 11th at the Breckenridge Inn, I-435 and Front Street in North Kansas City. A buffet dinner will start at 6:00 p.m. in the third floor conference room. Following this we will conduct our business meeting. Earlier presentations will be reviewed by the committee.

We hope that you can attend. Please keep a record of your mileage and the curriculum project will reimburse you for this trip to Kansas City.

Sincerely,

Robert Schwindt
Media Center Director

RS:jm
Enclosure

P.S. Please return the enclosed card letting us know if you can attend.

SCHEDULE FOR REVIEW

Group A

112 Horizontal Position Welding
113 Vertical Position Welding
114 Overhead Position Welding

Group B

130 The Basic of TIG Welding
131 TIG Set Up and Welding Procedures
150 Print Reading - Orthographic Projection

Group C

140 Introduction to Pipe Welding
141 Pipe Welding Techniques
142 Pipe Fitting and Basic Pipe Fittings

INSTRUCTIONS TO GROUP LEADERS

1. Hand out module (one at a time)
2. Review introduction
3. Review objectives
4. Review slide presentation
5. Review paperwork

Discussion

Summarize

MODULES SUGGESTED FOR FUTURE DEVELOPMENT
January 29, 1979

DIRECTIONS:

1. Review list
2. Add modules you feel are needed
3. Number in your order of preference (with one (1) as most important) the eight (8) topics you feel are most important.

______ Understanding, Setting and Operating the Gas Micro-Wire Unit

______ Welding Basic Joints in the Flat Position with the MIG Welding Unit

______ Welding Basic Out of Position Joints with the MIG Welding Unit

______ Welding Aluminum and Stainless Steel with the MIG Welding Unit

______ Welding Out of Position Joints with the TIG Welding Unit

______ Resistance Welding

______ Operating the Fuel Gas Welding Unit

______ Flame Cutting Equipment

______ Welding and Brazing with the Fuel Gas Unit

______ Blueprint Printing and Basic Layout Procedures

______ Metallurgy for Welding - Part I (Ferrous Metals)

______ Metallurgy for Welding - Part II (Non-Ferrous Metals and Alloys)

______ Heat Treatment of Metals

______ Understanding Tests and Inspection Methods

______ Destructive and Non-Destructive Testing of Welding Joints

______ ____

______ ____

______ ____

______ ____

______ ____

AGENDA

WELDING ADVISORY COMMITTEE MEETING
State Fair Community College
Sedalia, Missouri

January 29, 1979
Breckenridge Inn, Kansas City

6:00 p.m.	WELCOME AND INTRODUCTION	Robert Schwindt Media Center Director, SFCC
	DINNER	
7:00 p.m.	ADVISORY COMMITTEE MEETING	
	GENERAL OVERVIEW OF LAST YEARS ACCOMPLISHED	Gerald Evans Welding Curriculum Developer
	COMMENTS FROM THE STATE DEPARTMENT	Larry Lutz, Department of Elementary and Secondary Education
	REPRODUCTION AND DISTRIBUTION OF MATERIALS BY MEDIA CENTER	Robert Schwindt Media Center Director, SFCC
	REVIEW AND DISCUSSION OF INDIVIDUALIZED MODULES	
9:00 p.m.	SUBGROUP REPORTS	Committee Recorders
	RECOMMENDATIONS FOR FUTURE	Gerald Evans
9:30 p.m.	ADJOURNMENT	

State Fair Community College
and
Area Vocational School
Sedalia, Missouri 65301 Phone 816-826-7100

Robert Schwindt
Director, Media Center

March 9, 1979

Dear Advisory Committee Member:

We want to thank you for your assistance in reviewing these materials. We realize that some of you were not able to attend because of sickness or prior committments.

We feel that we received a fair and comprehensive review of the materials. Revisions are presently being made from the recommendations. Attached is a summary of the meeting.

We appreciate your help in this project. If we can be of assistance to you, please let us know.

Sincerely,
Robert Schwindt
Robert Schwindt
Media Center Director

Gerald Evans
Gerald Evans
Welding Instructor

SUMMARY OF WELDING ADVISORY COMMITTEE MEETING

January 29, 1979

The meeting was preceeded by a dinner at the Breckenridge Inn in Kansas City. Members present included Mr. Jerry Biggs of Trailmobile, Mr. Larry Lutz, State Supervisor of Technical Education, Mr. Jim Watson of RMF Steel, Mr. John Pool of Dart Truck Company, and Mr. Ray Petersen from Parkhurst Manufacturing Company.

Welding instructor Gerald Evans reported that recommended revisions had been completed on the modules reviewed at the previous advisory committee meeting.

Larry Lutz restated the importance of industry input into the technical programs in the state. He mentioned that curriculum materials must be accurate and current with industry standards if vocational students are to be prepared for employment.

Media Center Director Robert Schwindt reported that welding modules reviewed at the previous meeting were now being distributed.

The following revision suggestions were made by advisory committee members.

1. W-140 Introduction to Pipe Welding
    a. The artwork showing bead patterns need to be clarified especially the depiction of the weave patterns.
    b. Weld problems such as sag and undercut must be emphasized on slides so students can identify good and poor characteristics of welding beads.
    c. Clarify objectives
    d. Explain and diagram the various pipe welding positions and the type of weld beads used for welding pipe in those positions. Relate these to the welding practices in this module.
    e. Margin diagrams should show the welds for each practice exercise.

2. W-130 The Basics of TIG Welding
    a. The disadvantages of TIG welding or examples of where TIG welding would not be used should be mentioned such as for high speed production welding.
    b. Rather than showing a long list of metals that TIG welding could be used for, the module should emphasize, by showing examples, those metals that are not most widely TIG welded such as aluminum and stainless steel.

c. The artwork showing the current flow for DCSP (slide #26) and DCRP (slide #29) needs to be clarified.
d. Artwork may better emphasize, than a live shot, the color codes of electrodes (slide #45).
e. The parts of the TIG welding process should be identified on slide #20.

3. W-131 TIG Set Up and Welding Procedures

   a. Needs to tell why different sizes of ceramic cups are used.
   b. Include butt welding procedures with the TIG machine showing such things as the use of backup strips.
   c. Slides on selecting current (#18 & 29) were confusing--
      1. as to reasons why you would use the second choice, and
      2. exceptions to normal use.

      Simplify the slides (drop #19) and refer back to the information sheets for a more detailed explanation.
   d. Slide number 51 could be interpreted wrong since the helmet was up as welder was getting ready to start arc. (Welder also needs safety glasses.)
   e. Include a picture of a sight glass for slide #43.

4. W-113 Vertical Position Welding

   a. Add section on welding heavy plate
   b. Include methods of using low hydrogen electrodes.

5. W-112 Horizontal Position Welding

   a. Break up module into sections so it will be more easily followed.
   b. Improve art work of butt weld.

6. W-150 Orthographic Projection, Visualization and Dimensioning of Weldment Drawings

   a. Numerical order of slides needs changing.

7. W-141 Introduction to Pipe Welding

   a. Give estimated time for each learning activity.
   b. Break into sections with reviews over each section to facilitate learning of the difficult material located in this module.

1978-79 WELDING ADVISORY COMMITTEE MEMBERS

Mr. Tom Joslin
Midwest Conveyor
450 East Donovan Road
Kansas City, KS 66115
Phone: 913/321-5700

Mr. Rick Houser
Westwood Ornamental Iron
6105 Arlington
Raytown, MO 64113
Phone: 816/356-2500

Mr. Jerry Biggs
Trailmobile
701 East 16th Avenue
North Kansas City, MO 64116
Phone: 816/471-3200

Mr. Dave Hinkley
Havens Steel Company
7219 East 17th
Kansas City, MO 64126
Phone: 816/231-5724

Mr. Les Holland
Allis Chalmers Corp.
627 South Cottage
P.O. Box 1099
Independence, MO 64051
Phone: 816/836-0500

Mr. John Fuller
Kansas City Structural Steel
2100 Metropolitan
Kansas City, KS 66106
Phone: 913/831-1234

Mr. Rex Lasiter
Fashion, Inc.
3017 Dodge Road
Kansas City, KS 66115
Phone: 913/371-2621

Mr. Larry Lutz
Supervisor of Technical Education
Department of Elementary and
Secondary Education
Jefferson City, MO 65101
Phone: 314/751-4460

Mr. Jim Watson
RMF Steel
8045 Indiana
Kansas City, MO 64132
Phone: 816/523-4510

Mr. John Pool
Dart Truck Company
1301 Chauteau
Kansas City, MO 64120
Phone: 816/483-7679

Mr. Kenny James
EK Campbell
1809 Manchester
Kansas City, MO 64126
Phone: 816/483-3300

Mr. Pete Stover
Independent Welding Supply
Elkan Estates
Box 337
Elwood, KS 66024

Mr. Ray Peterson
Parkhurst Manufacturing Co.
2503 W. Broadway
Sedalia, MO 65301
Phone: 816/826-8685

Mr. Henry Ludwig
Welding Instructor
Crowder College
Neosho, MO 64850
Phone: 417/451-3583

Mr. Robert Seiler
2201 Jefferson
Lexington, MO 64067
Phone: 816/259-4580

Mr. Robert Schwindt
Media Center Director
State Fair Community College
1900 Clarendon Road
Sedalia, MO 65301
Phone: 816/826-7100

APPENDIX C

CURRICULUM DEVELOPMENT
ADVISORY COMMITTEE HANDBOOK

ADVISORY COMMITTEE RESPONSIBILITIES IN RELATION TO CURRICULUM DEVELOPMENT

I. Rationale

The comprehensive community college has accepted the role of meeting the needs of the rapidly changing world of work and the goals of an aspiring population. Basing its philosophy on providing services for the local area, State Fair Community College is eager for the kind of interaction which mutually benefits both the institution and the community it serves. The development and success of many programs can be attributed directly to the reliance on advisory committees comprised of civic-minded individuals possessing specialized experience and knowledge who are active and well-known in business and in the community. These committees are organized to help identify community and regional needs. They serve as a communication network providing valuable sources of information and assistance from the areas of business, industry, labor, and the general public. Although the advisory committee has no administrative authority, its role is to recommend change for the consideration of those with legally constituted authority. In this way sound judgment will be enhanced during the administrative decision-making process.

II. Local Policy

State Fair Community College has consistently used advisory committtees since its beginning. As the institution has grown, so has the number of advisory committees. The college places a high value on the services of the various advisory committees and looks to them for guidance in the development and continuance of programs.

Each instructional program within the divisions of vocational education has the guidance and assistance of an advisory committee, except in those instances where one committee serves two or more closely related programs. These committees function under the supervision of the Dean of Vocational Education.

Other advisory committees function under the supervision of the administrator who coordinates the respective program.

The President of the college is responsible for the overall efficient functioning of the advisory committee system and reviews all recommendations regarding membership appointments. Policy regarding program operation and committee recommendations are interpreted by the administrator in charge to the president who directs their implementation or presents them to the Board of Trustees when the recommendations would suggest a change in established policy. Therefore, committees are advisory to the instructional staff, administration, and the Board of Trustees in regard to instructional program operation.

III. Type of Committee

The media center advisory committees are considered to be ad hoc committees appointed for the purpose of reviewing a specific program curriculum. These committees will exist as long as active curriculum development through the media center continues.

IV. Duties of the Committee

Media Center advisory committees will have the following major responsibilities. These are:

1) To identify compentencies needed by individuals for successful employment.

2) To suggest priorities for the development of new modules.

3) To serve as resource people for individuals developing these modules, and media specialists doing photography.

4) To determine if the technical information presented is adequate and accurate.

5) To determine if equipment utilized in instructional procedures is satisfactory for business and industry training needs.

6) To determine if procedures given for performing skills and tasks are correct.

7) To determine if proper safety practices are emphasized and followed.

V. Organization

1. Qualifications of Members

Members of the advisory committee will be selected on the basis of their expertise in that vocational area. Membership should be of those individuals performing entry or production work as well as those individuals responsible for the training or supervision of employees. Students, graduates, counselors, placement staff, and instructors may be asked to serve as ex-officia members.

2. Selection of Members

Members shall be recommended by either:

a. Current members
b. State program officers
c. Instructors
d. Department chairpersons

and approved by agreement between department chairperson, media center director, and vocational dean.

3. Selection of Officers

The committees shall have a designated chairperson and secretary.

The media center director shall act as chairperson and the department chairperson as secretary.

4. Meetings

The number of meetings each year shall be determined by the quantity of materials to be rviewed.

5. Agenda and Minutes

An agenda shall be prepared by the chairperson and mailed to members prior to each meeting. However, committee members should be encouraged to suggest items to be included in the agenda.

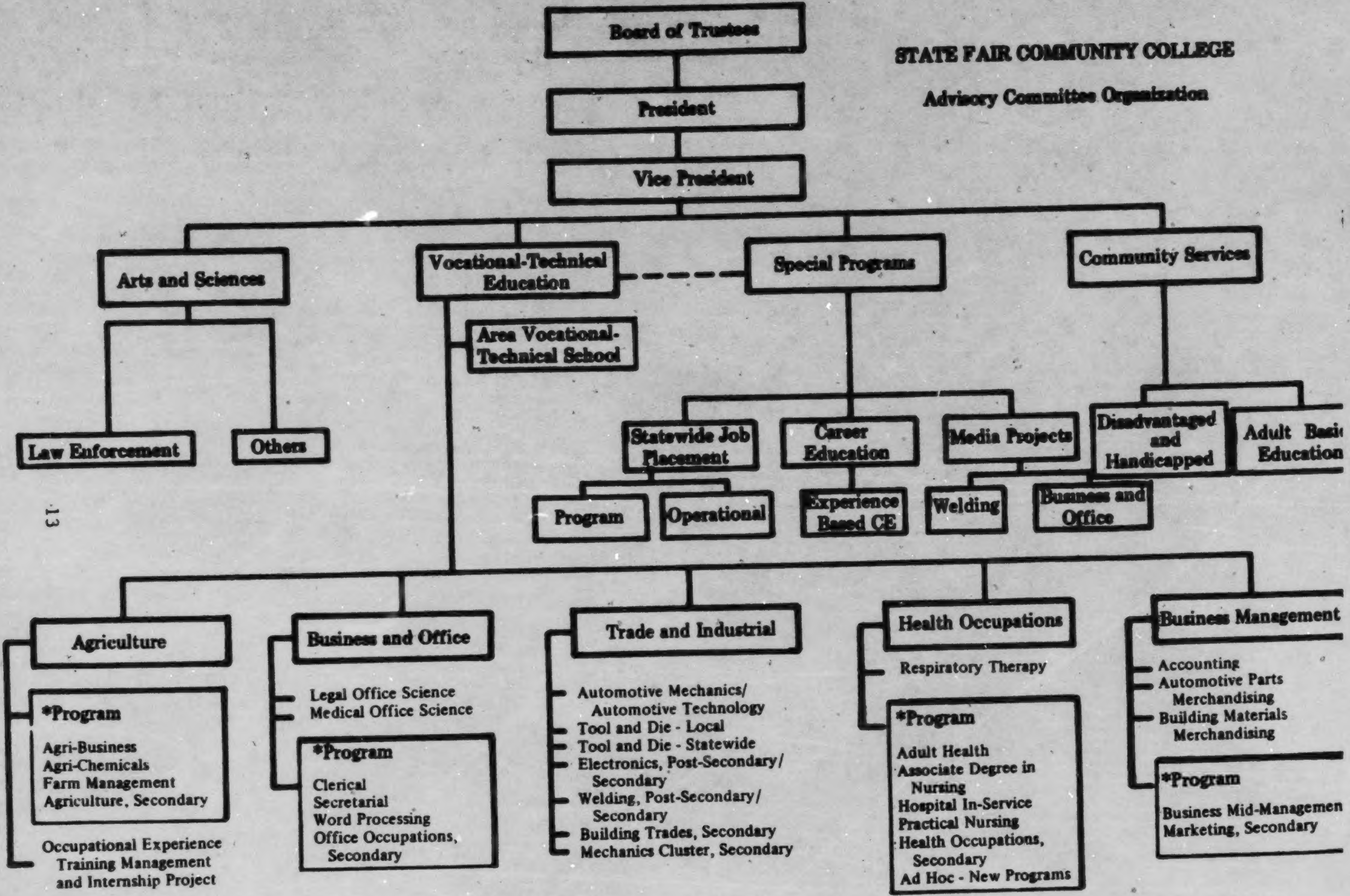
Minutes will be recorded at each meeting by the secretary and distributed to the member within 10 days of the meeting. A file shall be maintained in the dean's, department chairperson's, and media center director's office for viewing by interested persons.

6. Terms of Membership

Membership on the committee is appointed for a period of one year. Any member may be reappointed if it is determined by the dean or director that this would be advantageous for the committee. Care should be taken in order that membership on a committee should not become burdensome and so that other individuals who have expressed an interest in a particular program may have an opportunity to serve.

STATE FAIR COMMUNITY COLLEGE

Advisory Committee Organization


Board of Trustees
President
Vice President
Arts and Sciences
Vocational-Technical Education
Special Programs
Community Services
Law Enforcement
Others
Area Vocational-Technical School
Statewide Job Placement
Career Education
Media Projects
Disadvantaged and Handicapped
Adult Basi
Education
Program
Operational
Experience Based CE
Welding
Business and Office
Agriculture
*Program
Agri-Business
Agri-Chemicals
Farm Management
Agriculture, Secondary
Occupational Experience Training Management and Internship Project
Business and Office
Legal Office Science
Medical Office Science
*Program
Clerical
Secretarial
Word Processing
Office Occupations, Secondary
Trade and Industrial
Automotive Mechanics/ Automotive Technology
Tool and Die - Local
Tool and Die - Statewide
Electronics, Post-Secondary/ Secondary
Welding, Post-Secondary/ Secondary
Building Trades, Secondary
Mechanics Cluster, Secondary
Health Occupations
Respiratory Therapy
*Program
Adult Health
Associate Degree in Nursing
Hospital In-Service
Practical Nursing
Health Occupations, Secondary
Ad Hoc - New Programs
Business Management
Accounting
Automotive Parts Merchandising
Building Materials Merchandising
*Program
Business Mid-Managemen
Marketing, Secondary

*Program Committee functions in listed areas.

APPENDIX B

SAMPLE

Candidate Information Form

NAME ____

ADDRESS ____

________________ ________________ ZIP ________________

Telephone Number ____

Occupation or Title ____

Age ____

Educational Level ____

Occupational Function ____

Work Environment ____

Size of Employing Establishment ____

Degree of Interest (low) 1 2 3 4 5 (high) Circle one.

COMMENTS:

Interviewer ________________________ Date ________________

APPENDIX C

S A M P L E

Letter of Invitation to Serve on Advisory Committee

(Letterhead)

November 5, 1976

Ms. Eloise Atkins
Assistant to the President
Reinhart Fagen, Inc.
Warsaw, MO 65355

Dear Ms. Atkins:

The Business and Office staff of State Fair Community College extends an invitation to you to serve on their Advisory Committee for the 1976-77 year. You have been selected because of your respected position in the business community and because you have shown concern for and displayed support of our programs.

We hope you can accept our invitation and that you will be able to attend our first meeting. This meeting will be on Tuesday, November 16, at 7 p.m., in the Business and Office Department at SFCC.

We believe the Advisory Committee meeting is a way of discussing our role in meeting community needs in the area of clerical and secretarial training. Program planning and curriculum development in the SFCC Business and Office Department begins with an analysis of the occupation based on recommendations of persons like you who are actively employed in business.

Some of the areas we will discuss during this meeting are the scope and depth of programming in the department, new programs, and evaluation of existing programs. You will have an agenda prior to the meeting.

Please give this request for your help positive consideration. You may respond to our invitation by returning the enclosed card.

Sincerely,

Mrs. Shirley Evans, Chairwoman
Business and Office Department

SE/bw
Enclosure

APPENDIX D

SAMPLE

Advisory Committee Member Return Postcard

Will you be able to serve on the ____________________

________________________________ Advisory Committee?

_________ Yes　　　　　　　　_________ No

____
Signature

APPENDIX E

SAMPLE

Letter of Invitation to Attend Advisory Committee Meeting

(Letterhead)

October 26, 1977

Mr. Larry Lutz
Supervisor of Technical Education
Department of Elementary and
Secondary Education
Jefferson City, MO 65101

Dear Mr. Lutz:

Following the suggestions of the advisory committee at the 1976 September meeting, eleven welding modules have been developed. We would now like for you, as a member of this committee, to assist in the review of these materials and in selecting additional modules for development this year.

A dinner meeting of this committee has been scheduled for Tuesday, November 15, at the Gold Buffet, 503 East Eighteenth Avenue in North Kansas City starting at 6:00 p.m. Please return the enclosed post card letting us know if you can or cannot attend.

The main purposes of this meeting will be to review developed materials, suggest revisions, and make recommendations for future materials to be developed. Your support and advice will be greatly appreciated.

Sincerely,

Gerald Evans
Welding Curriculum Specialist

GE:jm

Enclosure

APPENDIX F

SAMPLE

Reply Card for Advisory Committee Meeting

________ Yes, I will attend the Advisory Committee meeting.

________ No, I will not be able to attend the Advisory Committee meeting.

Name ______________________________

Address ______________________________

Phone ______________________________

APPENDIX G

Basic Agenda for Regular Meetings

The advisory committee meeting agenda should include the following items:

AGENDA

_____________________ Advisory Committee Meeting

(Date)

I. Call to Order

II. Roll Call

III. Reading of Previous Minutes

IV. Old Business

V. New Business

VI. Adjournment

APPENDIX G

SAMPLE

Agenda for Advisory Committee Meeting

AGENDA

WELDING ADVISORY COMMITTEE MEETING
State Fair Community College
Sedalia, Missouri

November 15, 1977
Gold Buffet, North Kansas City

6:00 p.m.	WELCOME AND INTRODUCTION	Nila Hibdon, Dean Vocational-Technical Education, SFCC
	DINNER	
7:00 p.m.	ADVISORY COMMITTEE MEETING	
	GENERAL OVERVIEW OF WHAT HAS BEEN ACCOMPLISHED	Gerald Evans Welding Curriculum Developer
	COMMENTS FROM THE STATE DEPARTMENT	Larry Lutz, Department of Elementary and Secondary Education
	REPRODUCTION AND DISTRIBUTION OF MATERIALS	Robert Schwindt Media Center Director, SFCC
	REVIEW AND DISCUSSION OF INDIVIDUALIZED MODULES	
	Subgroup A-Modules 101, 102, 103 Subgroup B-Modules 104, 105, 106 Subgroup C-Modules 107, 108, 109 Subgroup D-Modules 110, 111, 1000	
9:00 p.m.	SUBGROUP REPORTS	Committee Recorders
	RECOMMENDATIONS FOR FUTURE DEVELOPMENT	Gerald Evans
9:30 p.m.	ADJOURNMENT	

APPENDIX H

Basic Minutes for Regular Meetings

Advisory committee meeting minutes should include the following items:

MINUTES

______________________ Advisory Committee Meeting

(Date)

I. The date and place of the meeting

II. The time the meeting was called to order

III. The name of the person presiding

IV. The names of those in attendance

V. Items of business discussed at the meeting and any recommendations of motions relative thereto

VI. The time of adjournment

VII. The name of the recording secretary

APPENDIX H

SAMPLE

Minutes for Advisory Committee Meeting

MINUTES

WELDING ADVISORY COMMITTEE

The first Media Center Welding Advisory Committee meeting was held September 14, 1976, at the Plaza Inn, Kansas City. Tom Joslin, Midwest Conveyor; Dave Hinkley, Havens Steel Company; Les Holland, Allis Chalmers Corp.; John Fuller, Kansas City Structural Steel; Al Wood, Kansas City Technical Center; Ralph Albin, Department of Elementary and Secondary Education; Nila Hibdon, Dan Blackledge, Jarold Welch, Dave Terrell, Jean Quinlan, and Gerald Evans of SFCC were present.

Before the business meeting a dinner was catered in the Hospitality Room No. 1 of the Plaza Inn. Nila Hibdon introduced the members from SFCC, and Jean Quinlan introduced the members from industry.

Gerald Evans called the business meeting to order and presented an explanation of the proposed curriculum development project at SFCC. Nila Hibdon then gave an overview of the vocational-technical division at SFCC.

Ralph Albin presented a discussion on the importance of having advisory committees to aid in curriculum development. Ralph also described how his department would help support curriculum development at SFCC.

Dan Blackledge, Media Center Director, described how the Media Center will serve to process mediated curricular materials and distribute them to other schools.

Gerald Evans presented a copy of a flow chart showing the basic instructional units the SFCC Media Center staff proposes to develop. Then an explanation of how the welding mediated materials will be developed was given. A sample slide-tape presentation on metal-arc safety was shown to help describe the mediated method of presenting content.

During the discussion period Les Holland explained that many students trained in the welding areas from vocational-technical schools are being rejected for employment because of a general lack of knowledge and skill required to pass entrance tests given welders. More emphasis must be placed on print reading and plant layout procedures. The student must be able to transfer knowledge from what he has learned in technical training to actual performance on the job.

Attendance standards and positive attitudes toward work should be stressed by training agencies to prepare students to meet employment standards on the job.

One problem facing technical training of welders at present is that MDTA trained too many people in the past who in turn flooded the market.

It was stressed that women should be encouraged to train for welding occupations.

Following the general discussion, Gerald Evans presented a list of competencies for several areas of welding. One member from industry and one from SFCC went through each list with instructions to delete competencies that should not be developed and to add any that should be taught.

Follow-up on the meeting will include mailing competencies to all members, meetings with each member present during October, and a general meeting of all members this spring. Gerald Evans scheduled individual meetings with each industry representative present for October sessions at the business site.

Submitted by Gerald Evans

GE/se

APPENDIX I

SAMPLE

Press Release Copy

PRESS RELEASE: STATE FAIR COMMUNITY COLLEGE

FOR PUBLICATION: (Desired publication date)

SUBJECT: (Name) Advisory Committee Meeting

BY: (Writer's name)

(Writer's position)

WORDS: (Number of words in article)

The State Fair Community College (name) Advisory Committee announced at its (date) meeting that a (name) program will be initiated in (month and year) .

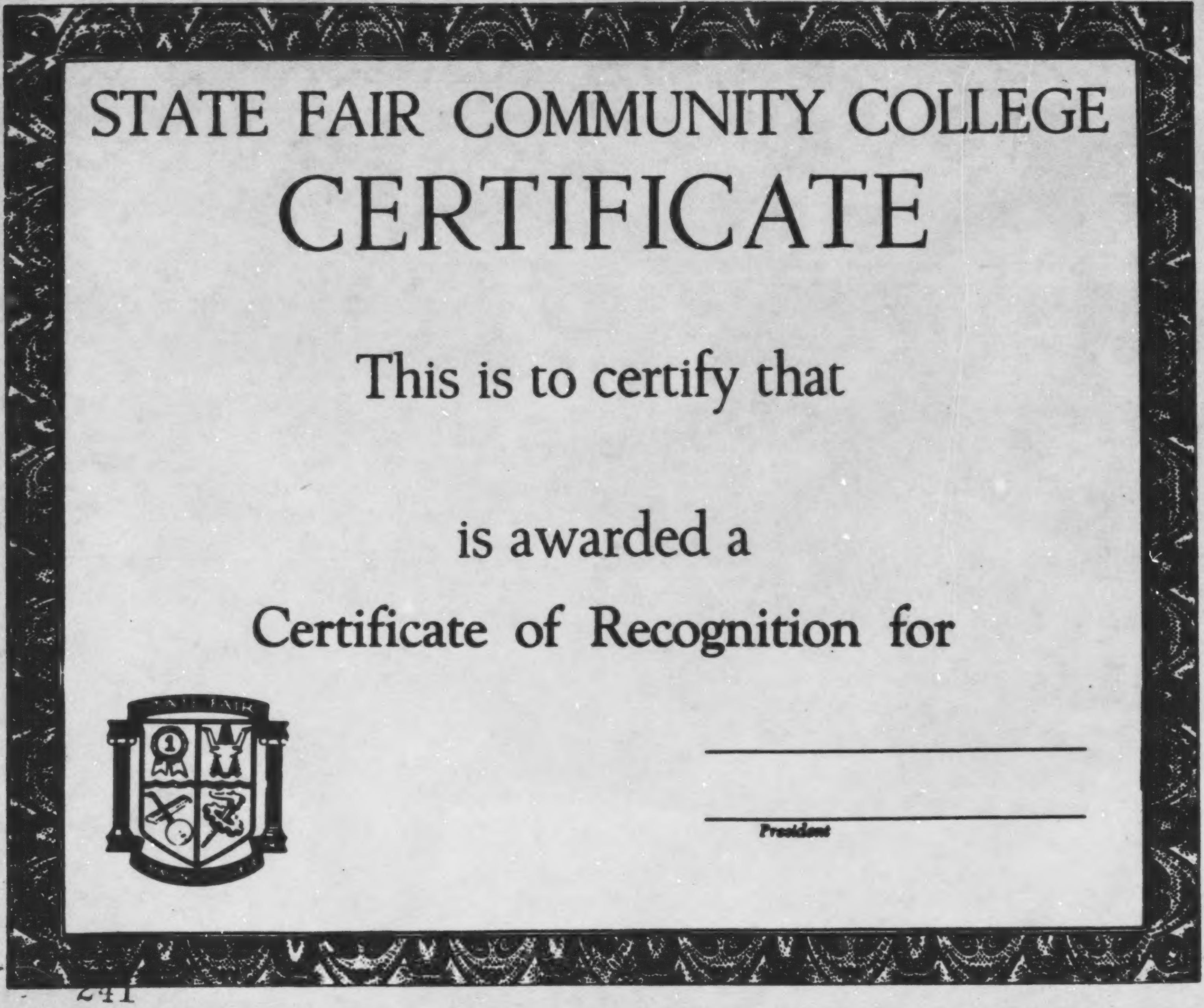
The Committee, representing school administration, business, industry, and the community, has found that there is a demand for students trained through this program. Business and industry will counsel in curriculum construction and help in placement after graduation.

________________, Commissioner of Education, and ________________, State Director of Vocational Education, have agreed to give their full support to assure successful organization and operation of this program.

APPENDIX K

S A M P L E

Certificate of Recognition



STATE FAIR COMMUNITY COLLEGE

CERTIFICATE

This is to certify that

is awarded a

Certificate of Recognition for

President

APPENDIX L

Strategies for Advisory Committee Involvement

1. Get all members well acquainted with each other before or soon after the first meeting begins.

   - Prepare a typewritten blip on each member for distribution to all members.

   - Provide simple refreshments before the meeting.

   - Provide (large) name cards at each member's place at the table. On the back of the card write "Smile, Ask Questions, Get Involved."

   - Prepare (large) printed label name tags.

   - Divide the committee into subgroups for a 10-15 minute question-and-answer period before the meeting really begins. Prepare different questions for each group to discuss.

   - If the meeting is for more than two hours and subcommittees are not being used, request that each person pick up their name place card and move to a new location after breaks.

2. Develop agenda and organize meetings.

   - Schedule all meetings as far in advance as possible--preferably they should be scheduled at the previous advisory meeting. If not, they should be scheduled at least sixty days in advance.

   - A tentative agenda should be prepared for each meeting by the director of the interest area. This agenda should then be presented in person to the chairperson for suggestions, additions, or deletions. The agenda of the procedures for conducting the meeting should be discussed and agreed upon by the staff of the interest area and the chairperson.

   - The agenda along with informational material concerning the agenda should be submitted to each member two weeks prior to the meeting.

   - Allow on the agenda thirty to forty minutes before each meeting for members to get acquainted, obtain name plates, and pick up informational material.

   - Plan an agenda that will allow sufficient time for discussion and input from each member.

- Develop an agenda of general items. Staff members should present general ideas for the committee to discuss. Their suggestions will either strengthen, increase, or delete from the original.

- Complete the agenda one item at a time. The meeting should move smoothly but allow adequate time for discussion of all items on the agenda.

- If lengthy discussion prevents some items from being considered, continue the unfinished items of the agenda at the next meeting.

- Complete the meeting on time but arrange for individual or group informal meetings in a comfortable atmosphere after the meeting.

3. Divide the advisory committee into subcommittees.

   - Reluctant persons will participate more readily in smaller groups.

   - The subcommittee should meet as groups.

   - Encourage the members of subcommittees to meet on their own time other than the advisory meeting.

   - Committee reports should be given to the entire group.

4. Let the committee and each member individually know that they are needed.

   - Members must feel a definite responsibility toward improving the program which they have been selected to advise.

   - Record the actions of the committee.

   - All committee actions must be considered. If the recommendations prove to be desirable, they should be implemented. If they are not, the committee should be informed that the recommendations cannot be used and be given the reasons for not accepting the recommendations.

5. Invite the members to collectively and individually visit the institution or the program area.

   - Let the advisory committee observe actual conditions that exist in the programs.

   - Discuss problems that exist that would be of interest to the members and ones with which they may give assistance. Let them know exactly what is going on. Level with them.

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6. Supply meals or substantial refreshments at meetings more than three hours long. Plan rest breaks each hour.

7. Plan for the meeting room.

   - The meeting room should be free from all types of disturbance, including telephones, outside people, and other distractions.

   - Work tables should be provided with the tables arranged in a U-shape.

8. Mail summarized minutes to each member within ten days after the meeting is held.

9. Present each member with a framed certificate of appreciation/recognition at an appropriate time.

APPENDIX D

A LIST OF NEW AND REVISED INDIVIDUALIZED INSTRUCTION MODULES

Modules Developed in Business and Office Occupations

522 Ten-Key Keyboard
533 Sony Secutive Model BM-34 Dictation Transcription Machine Operation
534 IBM 6:5 Dictation-Transcription Machine Operation
620 Introduction to Numeric Filing
725 Incoming Mail Part A
727 Outgoing Mail Part A
728 Outgoing Mail Part B
729 Classes of Mail
760 Telephone Communications

Modules Revised in Business and Office Occupations

725 Incoming Mail Part B
901 Legal Terminology - Litigation
902 Legal Terminology - Probate
710 Professionalism and Ethics
801 The Emergence of Word Processing
802 Word Processing Equipment (Input and Output)
533 Sony Secutive Module BM-34 Dictation-Transcription Machine Operation
534 IBM 6:5

Modules Developed in Agribusiness

511 Chemical Composition of Soil
512 Cation Exchange Capacity
513 Base Saturation and Soil pH
401 The Importance of Animal Nutrition
402 The Digestive System of Farm Animals

Modules Developed in Health Occupations

220 Shaving the Male Patient
221 Daily Hair Care of the Patient
222 Hair Care - Shampoo for the Patient
235 Introduction to TPR
236 Measuring Temperature, Pulse, and Respiration
237 Introduction to Blood Pressure
238 Measuring Blood Pressure
239 Introduction to Auscultation of Heart, Lung, and Bowel Sounds
240 Procedures of Heart, Lung, and Bowel Auscultation
250 Admission Procedure
251 Transfer and Dismissal Procedures
252 Collecting and Recording a Nursing History
253 The Nursing Process
610 Tracheostomy Care

Modules Revised in Health Occupations

231 Bed Making Procedures
206 The Patient's Chart
208 Handwashing

Module Development in Welding

112 Horizontal Position Metal Arc Welding
113 Vertical Position Shielded Arc Welding
114 Overhead Position Metal Arc Welding
130 The Basic of TIG Welding
131 Setting the TIG Welding Machine and Basic Joints
132 Out-of-Position TIG Welding
141 Pipe Welding Techniques
120 The Basics of MIG Welding
211 Setting and Operating the MIG Welding Unit

Welding Modules Revised

112 Horizontal Position Metal Arc Welding
113 Vertical Position Shielded Arc Welding
114 Overhead Position Metal Arc Welding
130 The Basic of TIG Welding
131 Setting the TIG Welding Machine and Basic Joints
140 Introduction to Pipe Welding
141 Pipe Welding Techniques
150 Print Reading

Modules Developed in Student Preparation for Employment

101 Importance of Understanding Job Hunting Techniques
102 What Do I Want to Do?
103 Helping Yourself Find a Job
104 Preparing for an Interview
105 The Resume
106 Communications in the Job Search
107 The Interview and Follow-up
108 Industry Requirements of Employees
109 What You Should Know About Wages, Fringe Benefits, Etc.

APPENDIX E

SAMPLE CONTRACT FOR INSTRUCTIONAL DEVELOPMENT

MEDIA CENTER CONTRACT

This contract is initiated between the Media Center, State Fair Community College and ______________________________

For services herein described:

Development of a module on:

Duties include: writing script, student manual and instructor's guide, specifying visuals, setting up appointments for live photography, reviewing module and slide program with director, media specialist, providing aids as needed, and revising module upon review by project participants.

Upon fulfilling these services or portions of services as described above and agreed upon between the contractor and the Media Center Director, State Fair Community College will pay $ XXX.XX when completed

Budget Code: ____________________

Contractor's Social Security No. ____________________

Initiation	**Completion**
Date	**Item**
Contractor	**Date of Completion**
Director	**Director**

PROCEDURE: Prepare four copies upon initiation of contract. Copies to; President, Vice President for Instruction, Media Center Director, and Contractor. Upon completion of contract or specified portion of contract, a signed copy will be sent to the Vice President's Office for payment initiation.

NOTE: *Materials developed under Media Center Contract become the property of the Media Center, State Fair Community College.*

APPENDIX F

SAMPLE MODULE

LESSON PLAN # H079-240

LESSON PLAN FORMAT

COURSE TITLE/NO. Fundamentals of Nursing

UNIT # 240 Procedure of Heart, Lung and Bowel Auscultation

(UNIT TITLE)

SCOPE OF UNIT: An introduction to the basic procedural steps of auscultating heart, lung and bowel sounds.

INFORMATION TOPIC # ________ OR DEMONSTRATION # 240

Procedure of Heart, Lung and Bowel Auscultation

LESSON TITLE

LESSON OBJECTIVE - THE STUDENT SHOULD BE ABLE TO:

1. Auscultate heart sounds
2. Auscultate lung sounds
3. Auscultate bowel sounds

SUPPLEMENTARY TEACHING/LEARNING ITEMS: (AIDS, TOOLS, MATERIALS, ETC.)

1. Slide/tape presentation-"Procedure of Heart, Lung and Bowel Auscultation"
2. tape recorder
3. Slide projector
4. Projection screen
   Unit equipment: Stethoscope, bed,
   Note: Instructor may use own preference concerning "who" the student should auscultate. A mannequin may be used to practice the procedure in order for a student to develop a systematic routine. Or students may auscultate classmate's heart, lung and bowel sounds.

	(Name)	(Date)	Special Learning Features For:
Written By:	Jan Striepe	1979	Individualized and group instruction
Instructional Delivery System By:			

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INFORMATIONAL ASSIGNMENT: (TEXT, REFERENCE BOOKS, INFO. SHEETS, ETC.)

1. Bates, B. A Guide to Physical Examination, J.B. Lippincott, 1974 pp. 88-122, 162
2. Gillies, D. and Alyn, I. Patient Assessment and Management by the Nurse Practioner, W.B. Saunders, 1976 pp. 37, 75-79, 81-83, 90-91
3. Lehman, Sister Janet--Auscultation of Heart Sounds, American Journal of Nursing, Volume 72 Number 7, pp. 1242-1246
4. Littman, David, Stethoscopes and Auscultation, American Journal of Nursing, Volume 72, Number 7 pp 1239-1241
5. Malasanos, L., Barkauskas, V., Moss, M. and Stoltenberg-Allen. Health Assessment, C.V. Mosby Co. 1977, Heart 6-9, 212-331, 243-246.
6. Willacker, J. Bowel Sounds American Journal of Nursing Volume 73, Number 12, pp. 2100-2101.

REFERENCES: (BIBLIOGRAPHY DATA)

(same as above)

INTRODUCTION: (SET INDUCTION: TO PREPARE STUDENTS FOR THE LESSON)

You have already read about and viewed the slide/tape presentation about auscultating heart, lung and bowel sounds. Now you will be able to apply this knowledge by practicing the procedure. Only when you are able to apply and utilize what you learn can you increase your assessment ability.

LESSON PLAN # H079-240

COURSE TITLE/NO. Fundamentals of Nursing

UNIT # 240 — Procedure of Heart, Lung and Bowel Auscultation
(Unit or Block Title)

DEMONSTRATION # ________ (MANIPULATIVE OPERATIONS)

TITLE: Procedure of Heart, Lung and Bowel Auscultation

STEPS OF PROCEDURE:

Auscultating heart sounds

1. Wash hands
2. Explain procedure to patient
3. Patient in supine position
4. Place warm diaphragm of stethoscope firmly on the skin at aortic or mitral area.

   Caution: 1) Reduce external noises

   2) Avoid conditions which would cause shivering

   Note: Utilize principles of proper auscultation techniques throughout procedure.
5. Listen selectively for S_1 and S_2, then listen for S_3 and S_4.

   Note: Listen for rate rhythm, intensity and abnormal sounds
6. Place bell lightly at aortic or mitral area

   Causion: Pressing bell too firmly against skin causes it to become a diaphragm
7. Move chestpiece systematically to remaining three areas and listen selectively at each area.

   Note: Order should be aortic, pulmonic, tricuspid and mitral or mitral, tricuspid, pulmonic and aortic
8. Listen first with diaphragm, then bell at each area.
9. Patient in left-lateral position

10. Listen with the bell at the mitral area

Note: If the abnormal S_3 and S_4 are present, they are best heard with the bell while patient lying on left side.

Auscultating Lung Sounds

1. Ascertain hands are clean
2. Explain procedure to patient

   Note: Demonstrate breathing technique if necessary
3. Patient in sitting position
4. Place warm diaphragm of stethoscope firmly at clavicle area.

   Note: Utilize principles of proper auscultation techniques throughout procedure.
5. Ascertain patient is breathing a little deeper and somewhat faster than usual with his/her mouth open.

   Caution: Observe patient for symptoms of hyperventilation
6. Listen systematically and selectively by comparing opposite chest areas step-wise down the anterior chest.

   Note: Listen for pitch, intensity, duration of inspiration and expiration, and abnormal sounds
7. Patient sitting with shoulders slightly forward
8. Listen systematically and selectively by comparing opposite chest areas step-wise down the posterior chest.

   Note: Listen for pitch, intensity, duration of inspiration and expiration, and abnormal sounds.

Auscultating Bowel Sounds

1. Ascertain hands are clean.
2. Explain procedure to patient
3. Place warm diaphragm on skin below and to the right of the umbilicus.

   (RLQ) Note: utilize principles of proper auscultation techniques throughout procedure
4. Listen for bowel sounds

   Note:
   - a. tapping abdomen may stimulate peristalsis
   - b. listen for up to 5 minutes, if necessary
   - c. Listen for frequency, intensity and pitch
   - d. Listen to all four quadrants if no peristalsis or abnormal peristalsis heard in RLQ.

LESSON PLAN # H079-240

COURSE TITLE/NO. Fundamentals of Nursing

UNIT # 240 — Procedure of Heart, Lung, and Bowel Auscultation
(Unit Title)

INFORMATION TOPIC # ______ or DEMONSTRATION # 240

INTERACTION ITEMS (To Be Keyed For Use During Presentation)

1. Why should the chestpieces, the room and your hands be warm?
2. What four factors do you listen for when auscultating the heart?
3. If S_3 and S_4 are present, in what position will they be heard?
4. How should the patient breathe to improve auscultating lung sounds?
5. What factors do you listen for when auscultating lung sounds?
6. What can you do to stimulate peristalsis?
7. How long should you listen for bowel sounds?

CLASSROOM, LABORATORY, SHOP OR OTHER ACTIVITIES:

LESSON PLAN # H079-240

COURSE TITLE/NO. Fundamentals of Nursing

UNIT # 240 — Procedure of Heart, Lung, and Bowel Auscultation
(Unit or Block Title)

EVALUATION ITEMS: (Oral, Written, or Performance to measure attainment of lesson objectives)

(SEE ATTACHED SHEET)

Reorder from: LaMP Co. (Learning & Media Products)
P.O. Box 1231
Maryland Heights, Mo. 63043

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KEY

ACTIVITY SHEET

Heart Auscultation

2. Why should the chestpiece, the room, and your hands be warm?

   To avoid causing the patient to shiver. Shivering or muscle contractions interfere with accurate auscultation.

3. What four factors do you listen for?

   rate, rhythm, intensity, and abnormal sounds

4. The diaphragm is placed **firmly** on the skin; the bell is placed **lightly** on the skin.
5. If S_3 and S_4 is present you will hear them when the patient is lying on **his/her left side**.

Lung Auscultation

6. Describe how a patient should breathe during auscultation.

   Little deeper and somewhat faster than usual with his mouth open.

7. What do you listen for when auscultating breath sounds?

   pitch, intensity, duration of inspiration and expiration, and abnormal sounds

Bowel Auscultation

8. What can you do to stimulate peristalsis?

   tap or flick abdomen

9. If you are not hearing any bowel sounds, how long should you listen before you stop listening?

   five minutes

KEY
STUDENT EVALUATION
Auscultating Heart, Lung and Bowel Sounds

Evaluation check list: The student will demonstrate the proper procedure of auscultation of heart, lung and bowel sounds in 20 minutes or less using supplies and equipment provided.

Auscultation of the Heart:

	YES	NO	REMARKS
Washed hands			
Explained procedure			
Placed warm diaphragm firmly on the skin at aortic or mitral area.			
Listened selectively			
Moved chestpiece systematically to remaining three areas			
Listen selectively at each area			
Used both diaphragm and bell at each area			
Position patient in left lateral position			
Auscultated with bell at mitral area			
Utilized proper auscultation techniques throughout procedure			

KEY
STUDENT EVALUATION

Auscultation of the Lungs:

	YES	NO	REMARKS
Performed procedure with clean hands.			
Explained procedure			
Patient is sitting position			
Placed warm diaphragm firmly at clavicle area			
Ascertained patient's breathing enhanced auscultation			
Listened systematically comparing opposite chest areas step-wise down the anterior chest			
Patient sitting with shoulders slightly forward.			
Listened systematically by comparing opposite chest areas step-wise down the posterior chest.			
Utilized proper auscultation techniques throughout procedure.			

KEY
STUDENT EVALUATION

Auscultation of Bowel Sounds:

	YES	NO	REMARKS
Ascertain hands are clean			
Explained procedure			
Place warm diaphragm on skin below and to the right of the umbilicus (RLQ)			
Listened for bowel sounds			
Utilized proper auscultation techniques throughout procedure			

SCRIPT - HO 79-240 - PROCEDURE OF HEART, LUNG AND BOWEL AUSCULTATION

1. THIS IS A PRESENTATION OF THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE.

2. SLIDE/TAPE PRESENTATION NUMBER 240 - PROCEDURE OF HEART, LUNG, AND BOWEL AUSCULTATION.

3. YOU HAVE ALREADY LEARNED THE PRINCIPLES OF HEART, LUNG, AND BOWEL AUSCULTATION. THIS LESSON WILL HELP YOU TO APPLY THIS KNOWLEDGE.

4. AFTER COMPLETING THIS LESSON YOU SHOULD BE ABLE TO:
    1. AUSCULTATE HEART SOUNDS
    2. AUSCULTATE LUNG SOUNDS

5. AND THREE, AUSCULTATE BOWEL SOUNDS.

6. THE FIRST SECTION WILL PRESENT THE STEPS OF HEART AUSCULTATION.

7. AS YOU KNOW, WHEN PERFORMING ANY PROCEDURE, YOUR HANDS SHOULD BE CLEAN.

8. ALSO, PROCEDURES SHOULD ALWAYS BE EXPLAINED TO THE PATIENT.

9. WHETHER AUSCULTATING HEART, LUNG, OR BOWEL SOUNDS, CORRECT AUSCULTATION TECHNIQUES ARE NECESSARY FOR AN ACCURATE ASSESSMENT.

10. WITH THE PATIENT IN A SUPINE POSITION, PLACE THE WARM DIAPHRAGM FIRMLY ON THE SKIN AT EITHER THE AORTIC OR MITRAL AREA.

11. LISTEN SEDUCTIVELY FIRST FOR S-ONE, THEN LISTEN FOR S-TWO, S-THREE, AND S-FOUR. TAKE TIME TO EVALUATE EACH SOUND.

12. REMEMBER THAT S-ONE AND S-TWO ARE NORMAL WHEREAS S-THREE AND S-FOUR ARE USUALLY ABNORMAL.

13. IT IS IMPORTANT TO EVALUATE EACH HEART SOUND FOR RATE, RHYTHM, INTENSITY, AND ABNORMAL SOUNDS.

14. THEN THE HEART SOUNDS ARE ASSESSED WITH THE BELL AT THE AORTIC AREA. THE BELL IS PRESSED LIGHTLY ON THE SKIN.

15. THE CHESTPIECE IS MOVED TO THE PULMONIC AREA, AND THE HEART SOUNDS EVALUATED USING THE DIAPHRAGM.

16. THEN USE THE BELL TO LISTEN TO THE HEART SOUNDS.

17. THE ASSESSMENT CONTINUES BY LISTENING WITH THE DIAPHRAGM....

18. AND WITH THE BELL AT THE TRICUSPID AREA.

19. THEN LISTEN WITH THE DIAGHRAM AT THE MITRAL AREA.

20. ALSO EVALUATE THE HEART SOUNDS WITH THE BELL AT THE MITRAL AREA. REMEMBER THAT YOU CAN REVERSE THE SEQUENCE BY STARTING AT THE MITRAL AREA IF YOU PREFER. HOWEVER, YOUR AUSCULTATION ROUTINE SHOULD BE SYSTEMATIC AND CONSISTENT.

21. POSITION THE PATIENT IN THE LEFT LATERAL POSITION TO DETERMINE IF S-THREE AND S-FOUR ARE PRESENT. IF THESE SOUNDS ARE HEARD AT THE MITRAL AREA, AUSCULTATE THE OTHER AREAS.

22. IF YOU HEARD ANY ABNORMAL SOUNDS OR IF YOU WANT TO DO A MORE THOROUGH EVALUATION, LISTEN TO ALL FOUR AREAS OF THE HEART WITH THE DIAPHRAGM AND BELL WITH THE PATIENT IN THE LEFT-LATERAL POSITION.

23. AUSCULTATING LUNG SOUNDS PROVIDES DATA ABOUT THE PATIENT'S RESPIRATORY STATUS.

24. THE PROCEDURE SHOULD BE EXPLAINED TO THE PATIENT. DEMONSTRATING THE BREATHING TECHNIQUES HELPS ENSURE PATIENT'S UNDERSTANDING AND COOPERATION.

25. REMEMBER THAT CORRECT AUSCULTATING TECHNIQUES ARE ESSENTIAL WHENEVER AUSCULTATING. THEY ARE ESPECIALLY IMPORTANT WHEN LISTENING TO LUNG SOUNDS. INCORRECT AUSCULTATION TECHNIQUES CAN PRODUCE NOISES THAT SOUND LIKE ADVENTITIOUS SOUNDS SUCH AS RALES. WETTING THE CHEST HAIR HELPS TO PREVENT HEARING DISTORTED SOUNDS.

26. THE ANTERIOR CHEST IS AUSCULTATED STARTING AT THE CLAVICLE AREA. THE SITTING POSITION AND THE CORRECT BREATHING TECHNIQUE FACILITATES LUNG AUSCULTATION.

27. LISTENING TO SYMETRICAL AREAS PROVIDES COMPARISON OF EACH SIDE.

28. LISTEN SELECTIVELY AND SYSTEMATICALLY FOR PITCH, INTENSITY, DURATION OF INSPIRATION AND EXPIRATION, AND ABNORMAL SOUNDS.

29. PROCEED STEP-WISE DOWN THE ANTERIOR CHEST.

30. COMPARE EACH AREA UNTIL THE ENTIRE ANTERIOR CHEST HAS BEEN AUSCULTATED.

31. THEN THE POSTERIOR CHEST IS AUSCULTATED. USE THE SAME PROCEDURAL STEPS AS BEFORE.

32. CONTINUE TO AUSCULTATE SYMETRICAL AREAS STEP-WISE DOWN THE POSTERIOR CHEST.

33. REMEMBER THAT THE LUNG SOUNDS ARE USUALLY HEARD BEST OVER THE POSTERIOR CHEST. COMPLETE YOUR AUSCULTATION BY LISTENING TO THE LOWER LUNG FIELDS.

34. THE LAST SECTION DESCRIBES THE PROCEDURE OF AUSCULTATING BOWEL SOUNDS.

35. AFTER EXPLAINING THE PROCEDURE TO THE PATIENT, THE DIAPHRAGM IS PLACED ON THE SKIN.

36. AGAIN, REMEMBER TO APPLY THE PRINCIPLES OF AUSCULTATION DURING THE PROCEDURE. BOWEL SOUNDS ARE USUALLY HEARD BEST BELOW AND TO THE RIGHT OF THE UMBILICUS.

37. IF NO BOWEL SOUNDS ARE HEARD, TAPPING OR FLICKING THE ABDOMEN MAY STIMULATE PERISTALSIS.

38. EVALUATE THE BOWEL SOUNDS FOR FREQUENCY, INTENSITY, AND PITCH.

39. SINCE BOWEL SOUNDS CAN BE HIGHLY IRREGULAR, LISTEN TO THE ABDOMEN FOR UP TO FIVE MINUTES. ALSO, YOU DO NOT HEAR ANY PERISTALSIS IF YOU HEAR ANY ABNORMAL SOUNDS. LISTEN TO ALL FOUR QUADRANTS OF THE ABDOMEN.

40. IN THIS LESSON YOU HAVE LEARNED THE PROCEDURAL STEPS OF AUSCULTATING HEART SOUNDS.

41. LUNG SOUNDS.....

42. AND BOWEL SOUNDS.

43. ALTHOUGH THIS LESSON DISCUSSED LISTENING FIRST TO HEART SOUNDS, THEN LUNG AND BOWEL SOUNDS, THE SEQUENCE CAN BE CHANGED.

44. DEVELOPING A SYSTEMATIC AND CONSISTENT ROUTINE IS THE IMPORTANT RULE TO REMEMBER. PRACTICE ON ALL TYPES OF PATIENTS TO DEVELOP AND IMPROVE YOUR AUSCULTATION SKILLS. IT IS A VALUABLE TOOL TO USE IN ASSESSING YOUR PATIENTS.

45. THIS PRESENTATION WAS WRITTEN BY JAN STRIEPE AND PRODUCED BY CHARLES COGAR FOR THE MEDIA CENTER OF STATE FAIR COMMUNITY COLLEGE.

46. PLEASE REWIND THE TAPE AND RETURN THE MATERIALS TO THE PROPER STORAGE AREA.

HO79-240

MEDIA CENTER
STATE FAIR COMMUNITY COLLEGE
1900 Clarendon Road
Sedalia, Missouri 65301

HEALTH OCCUPATIONS
200 Fundamentals of Nursing
240 Procedure of Heart, Lung and Bowel Auscultation

Student ______________________

Date Started ______________
Date Completed ______________
Approved ______________

INTRODUCTION

You have viewed the slide/tape presentation and read about auscultating heart, lung, and bowel sounds in the last module. Now you will be able to apply this knowledge by practicing the procedure. Only when you are able to apply and utilize what you learn can you increase your assessment ability.

OBJECTIVE

Each student will be able to

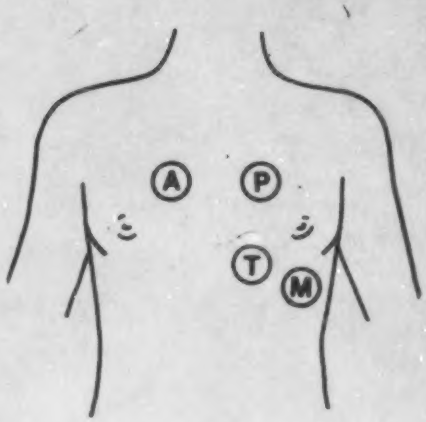
1. Auscultate heart sounds
2. Auscultate lung sounds.
3. Auscultate bowel sounds.

PROCEDURE

This is a demonstration module and you will be required to perform the basic skills of heart, lung, and bowel auscultation. Read the steps of the procedure carefully and then view the slide/tape presentation. After viewing the presentation, take your activity sheets with you to the laboratory and practice the skills.

INFORMATIN SHEET

NOTES



Auscultating Heart Sounds

1. Wash your hands
2. Explain the procedure to the patient
3. Patient should be in supine position.
4. Place warm diaphragm of stethoscope firmly on the skin at the aortic area of the body

   Caution: (1) Reduce external noices

   (2) Avoid conditions which would cause shivering

   Note: Utilize principles of proper auscultation techniques throughout procedure.
5. Listen selectively for S_1 and S_2. Then listen for S_3 and S_4

   Note: Listen for rate, rhythm, intensity, and abnormal sounds
6. Place bell lightly at aortic or mitral area

   Caution: Pressing bell too firmly against skin causes it to become a diaphragm
7. Move chestpiece systematically to remaining three areas and listen selectively at each area.

   Note: Order should be aortic, pulmonic, tricuspid and mitral or mitral, tricuspid, pulmonic and aortic
8. Listen first with diaphragm, then bell at each area
9. Place patient in left-lateral position
10. Listen with the bell at the mitral area

    Note: If the abnormal S_3 and S_4 are present, they are best heard with the bell while patient lying on left side.

Auscultating Lung Sounds

1. Ascertain that your hands are clean
2. Explain the procedure to the patient

   Note: Utilize principles of proper auscultation technique if necessary
3. Patient should be in sitting position
4. Place the warm diaphragm of the stethoscope firmly at clavicle area

   Note: Utilize principles of proper auscultation techniques throughout procedure

INFORMATION SHEET NOTES

5. Ascertain patient is breathing a little deeper and somewhat faster than usual with his/her mouth open.

   Caution: Observe patient for symptoms of hyperventilation

6. Listen systematically and selectively by comparing opposite chest areas step-wise down the anterior chest.

   Note: Listen for pitch, intensity, duration of inspiration and expiration, and abnormal sounds

7. Next the patient should be sitting with shoulders slightly forward

8. Listen systematically and selectively by comparing opposite chest areas step-wise down the posterior chest

   Note: Listen for pitch, intensity, duration of inspiration and expiration and abnormal sounds

Auscultating Bowel Sounds

1. Ascertain that your hands are clean
2. Explain the procedure to the patient
3. Place the warm diaphragm on skin below and to the right of the umbilicus. (RLQ)

   Note: Utilize principles of proper auscultation techniques throughout procedure

4. Listen for bowel sounds

   Note: a. tapping abdomen may stimulate peristalsis

   b. listen for up to 5 minutes, if necessary

   c. listen for frequency, intensity, and pitch

   d. listen to all four quadrants if no peristalsis or abnormal peristalsis heard in RLQ.

ACTIVITY SHEETS

1. Go to the lab and practice the demonstration lesson. Follow these steps:

Auscultating Heart Sounds

1. Wash hands
2. Explain procedure to patient
3. Patient in supine position
4. Place warm diaphragm of stethoscope firmly on the skin at aortic or mitral area

   Caution: (1) Reduce external noises

   (2) Avoid conditions which would cause shivering

   NOTE: Utilize principles of proper auscultation techniques throughout procedure
5. Listen selectively for S_1 and S_2. Then listen for S_3 and S_4

   NOTE: Listen for rate rhythm, intensity, and abnormal sounds
6. Place bell lightly at aortic or mitral area

   Caution: Pressing bell too firmly against skin causes it to become a diaphragm
7. Move chestpiece systematically to remaining three areas and listen selectively at each area.

   NOTE: Order should be aortic, pulmonic, tricuspid and mitral OR mitral, tricuspid, pulmonic and aortic
8. Listen first with diaphragm, then bell at each area

   NOTE: If the abnormal S_3 and S_4 are present, they are best heard with the bell while patient lying on left side.

Auscultating Lung Sounds

1. Ascertain hands are clean
2. Explain procedure to patient

   NOTE: Demonstrate breathing technique if necessary
3. Patient in sitting position
4. Place warm diaphragm of stethoscope firmly at clavicle area.

   NOTE: Utilize principles of proper auscultation techniques throughout procedure
5. Ascertain patient is breathing a little deeper and somewhat faster than usual with his/her mouth open

   Caution: Observe patient for symptoms of hyperventilation
6. Listen systematically and selectively by comparing opposite chest areas step-wise down the anterior chest.

   NOTE: Listen for pitch, intensity, duration of inspiration and expiration, and abnormal sounds

7. Patient sitting with shoulders slightly forward
8. Listen systematically and selectively by comparing opposite chest areas step-wise down the posterior chest.

   NOTE: Listen for pitch, intensity, duration of inspiration and expiration, and abnormal sounds

Auscultating Bowel Sounds

1. Ascertain hands are clean
2. Explain procedure to patient
3. Place warm diaphragm on skin below and to the right of the umbilicus. (RLQ)

   NOTE: Utilize principles of proper auscultation techniques throughout procedure
4. Listen for bowel sounds

   NOTE:
   a. tapping abdomen may stimulate peristalsis
   b. listen for up to 5 minutes, if necessary
   c. listen for frequency, intensity, and pitch
   d. listen to all four quadrants if no peristalsis or abnormal peristalsis heard in RLQ.

ACTIVITY SHEET

Heart Auscultation

2. Why should the chestpiece, the room, and your hands be warm?

3. What four factors do you listen for?

4. The diaphragm is placed__________ on the skin; the bell is placed________ on the skin.
5. If S_3 and S_4 is present, you will hear them when the patient is lying on _____________.

Lung Auscultation

6. Describe how a patient should breathe during auscultation.

7. What do you listen for when auscultating breath sounds?

Bowel Auscultation

8. What can you do to stimulate peristalsis?

9. If you are not hearing any bowel sounds, how long should you listen before you stop listening?

STUDENT EVALUATION

Auscultating Heart, Lung and Bowel Sounds

Evaluation check list: The student will demonstrate the proper procedure of auscultation of heart, lung and bowel sounds in 20 minutes or less using supplies and equipment provided.

Auscultation of the Heart:

	YES	NO	REMARKS
Washed hands			
Explained procedure			
Placed warm diaphragm firmly on the skin at aortic or mitral area.			
Listened selectively			
Moved chestpiece systematically to remaining three areas			
Listen selectively at each area			
Used both diaphragm and bell at each area			
Position patient in left lateral position			
Auscultated with bell at mitral area			
Utilized proper auscultation techniques throughout procedure			

STUDENT EVALUATION

Auscultation of the Lungs:

	YES	NO	REMARKS
Performed procedure with clean hands.			
Explained procedure			
Patient is sitting position			
Placed warm diaphragm firmly at clavicle area			
Ascertained patient's breathing enhanced auscultation			
Listened systematically comparing opposite chest areas step-wise down the anterior chest			
Patient sitting with shoulders slightly forward.			
Listened systematically by comparing opposite chest areas step-wise down the posterior chest.			
Utilized proper auscultation techniques throughout procedure.			

STUDENT EVALUATION

Auscultation of Bowel Sounds:

	YES	NO	REMARKS
Ascertain hands are clean			
Explained procedure			
Place warm diaphragm on skin below and to the right of the umbilicus (RLQ)			
Listened for bowel sounds			
Utilized proper auscultation techniques throughout procedure			

APPENDIX G

TIME SHEETS

MEDIA SPECIALIST

INSTRUCTOR

Total Hours ______

Salary Costs ______

Name ______________________________

MEDIA SPECIALIST

PERSONNEL UTILIZATION

Module Title ______________________________ Number ______________

Writer ______________________________ Length of Presentation ______________

Date Assigned ______________________________ Number of Slides ______________

Date To Be Completed ______________________ Live Shots ______________

Date Completed ______________________ Kodaliths ______________

Illustrations ______________

TIME REQUIREMENTS

Date	*Activities	Hours Spent
	TOTAL	

*Activities - Editing Script, Writer Consultation, Script Modification & Consultation, Developing Graphics, Developing Kodaliths, Live Photography, Audio Recording, Revisions, Slide Editing, Program Assembly, and Pre-production Site Visitation (SEE BACK)

OUTSIDE ACTIVITIES

Kodaliths - Date turned in ______________ Date returned ______________

Illustrations - Date turned in ______________ Date returned ______________

MATERIALS UTILIZATION

Film

Type ____________ Number of Rolls ________ Total Cost ____________

Audio Tape

¼ inch reels Quantity __________ @ ________ Total Cost ____________

Cassette Quantity __________ @ ________ Total Cost ____________

Videotape

3/4 inch cassettes Quantity ________ @ ________ Total Cost ____________

Graphics/Illustrations

Materials Used

Inhouse ____________________ Material Costs __________

____

____

Contract Number __________ Total Cost ______________

Paper (Storyboards, Electrostatic Dupes of Script, Clipart, and other forms)

Number of pages __________ Total Cost ____________

Miscellaneous Supplies (props, etc.) list Cost

____ ____________

____ ____________

____ ____________

Travel Expenses

Total mileage ____________

Total meals ____________

Total lodging ____________

Phone Expenses ____________

GRAND TOTAL ____________

Notes - Explanations

Total Hours ______

Salary Costs ______

Name ______________________

CURRICULUM DEVELOPER

PERSONNEL UTILIZATION

Module Title ______________________

Module Number ______________________

Date Assigned ______________________

Media Specialist ______________________

	Script	S/I Packet
Date To Be Completed		
Date First Draft Completed		
Date Final Copy Approved		

Staffing Plan

Overload ______________

Release Time __________

Contract ______________

LENGTH OF PROGRAM

Expected Time for Students to Complete ______________

Pages in Student Manual ______________________

Pages in Instructor's Guide ______________________

Number of Slides ______________________

TIME REQUIREMENT

Date	*Activities	Hours Spent

Date	*Activities	Hours Spent
	TOTAL	

MATERIALS UTILIZED

Materials	Amount	Costs

*Activities - Research, Student Information, Student Activities, Student Evaluation, Developing Script, Revisions, Proofreading, Assisting with Photography, Recording, Consultation with Media Specialist.

Travel Expenses

Total mileage ______

Total meals ______

Total lodging ______

Phone Expenses ______

Grand Total ______

APPENDIX H

PROCEDURES FOR DETERMINING MODULE CREDIT EQUIVALENT AND PAYMENT

MEDIA CENTER PROCEDURES
FOR DETERMINING
CREDIT EQUIVALENTS AND PAYMENT
FOR MODULE DEVELOPMENT

Curriculum Developer ______________________

Module ______________________

Date ______________________

Module Credit Hours ______________________

Salary Schedule: Step _____ Level _____

Contract Amount ______________

Amount per Credit Hour ______________

Payment for Curriculum Development

A. Off-campus instructors and instructors employed less than one-half time will be paid on part-time instructor's salary schedule.

B. If present or previous contract is for one-half time or more, the developer will be paid according to the overload schedule (including summer contracts)

C. Instructors giving release time from instructional duties will develop a specified number of modules based on the amount of release time.

Development Credit Equivalent

A. A module will be equated to instructional credit hours using total points from the following item checklist.

12 points are equivalent to 1 credit hour
24 points are equivalent to 2 credit hours
36 points are equivalent to 3 credit hours

B. In general this would equate:

1 credit hour to 25-30 hours of work
2 credit hours to 55-60 hours of work
3 credit hours to 85-95 hours of work

a. Availability of references
    2 in department
    4 in library or can be ordered
    6 not available
b. Complexity of subject matter
    2 simple-general knowledge already known
    4 medium-must brush up on subject
    6 technical-must review and research subject
c. Type of presentation
    2 informational or demonstration lesson only (information in outline form)
    4 information in paragraph or narration form
    6 includes both information and demonstrational lesson
d. Outline
    1 lesson outline available in lesson plan or curriculum
    2 outline must be developed from curriculum guide
    3 outline must be developed from competency studies and research materials
e. Length
    1 one concept or procedure
    2 several concepts or complex procedures
f. Media type
    1 print
    2 audio tape
    3 videotape
    4 slide/tape
g. Audio tapes (if applicable)
    1 script similar to information
    2 script different from information
    3 multiple audio tapes
h. Videotapes (if applicable)
    2 minimal preparation and props
    4 involved pre-planning and/or props
i. Slide presentations (when applicable)
    2 limited lab shots
    4 requires props to be developed
    6 off-campus location photography
    8 multiple lab or off-campus photography or combination of above
j. Activities
    2 question format-recall of information
    4 lab, class, outside activities included
    6 complex activity sheets-lab exercises, shot prints, etc.
k. Evaluation
    1 checklist
    2 medium length question and answer
    3 multiple forms of test or long test with variety of questions

APPENDIX I

PRETEST TO MEASURE
INSTRUCTOR'S INDIVIDUALIZE INSTRUCTION
CURRICULUM DEVELOPMENT COMPETENCIES

KEY
PRE-TEST INSTRUCTIONS

The purpose for this test is to determine how much background information you have and to assess your ability to develop modularized competency-based individualized instruction.

Since this is a test to determine your present knowledge and module development ability, it is important that you do not guess at questions you are unsure of. Please leave those answers blank.

NAME: ______________________________

SCHOOL: ______________________________

DATE: ______________________________

CURRICULUM AREA: ______________________________

HAVE YOU PREVIOUSLY:

Performed a job or task analysis: ______________________________

Area: ______________________________

Taught an individualized instruction course: ______________________________

Title: ______________________________

Developed an individualized module: ______________________________

Title: ______________________________

Written a script for mediation: ______________________________

Multiple Choice: Circle the letter preceding the correct answer.

1. Instruction where the student can progress at their own learning rate is known as:

   A. Open entry-open exit
   [✓ B.] Self-paced
   C. Competency based
   D. Performance based

2. The methods of instruction by which each student learns best is known as their:

   A. Criterion reference
   B. Affective domain
   [✓ C.] Learning style
   D. Individualized instruction

3. The domain dealing with learning of knowledge is known as the:

   [✓ A.] Cognitive
   B. Affective
   C. Psychomotor

4. Which of the following media types are most expensive to produce:

   A. Audio tapes
   B. Slide sets
   [✓ C.] 16 mm films
   D. Videotapes

5. Which of the following media types would be most appropriate to show the correct movements for performing a dance:

   A. Pictures
   B. Slides
   C. Filmstrip
   [✓ D.] Videotape

6. A system of instruction where student progress based on their achievement of pre-specified skills, knowledge, or attitude is known as:

   A. Individualized instruction
   [✓ B.] Competency based education
   C. Learning style
   D. Open-entry, open-exit

7. Testing where student's success or failure is based on their achievement of pre-specified skills, knowledge, or attitude is known as:

   A. Feedback
   B. Norm-referenced
   [✓ C.] Criterion-referenced
   D. Modularized

8. A pre-test is used:

   A. Before instruction to determine current learing level
   B. To determine if student needs to take that module
   C. For selecting starting place for student in a module, unit or course
   [✓ D.] All of the above
   E. A and C

9. Instruction where the course of study is broken down into packages that are able to stand on their own and contain nearly all of the learning materials necessary for the student to complete the objectives is called:

   A. Individualized
   B. Competency-based
   [✓ C.] Modularized
   D. Criterion referenced

10. When developing learning activities the instructor must consider:

   A. Module objectives
   B. Individual student characteristics
   C. Resources and materials available
   [✓ D.] All of the above

11. A module introduction should:

   A. Tell student what will be included
   B. Tell instructor how module should be taught
   C. Increase student's interest in module (motivate)
   D. All of the above
   [✓ E.] A and C

12. The best type of learning activity:

   A. Asks for recall of key points from module information
   B. Instructs students to practice skills
   [✓ C.] Provides learning specified by objectives
   D. Gives student alternatives

13. A module post-test should:

   A. Contain a variety of questions
   [✓ B.] Measure learning called for by objective
   C. Measure all three learning domains
   D. Measure everything the student was to learn

14. To determine the adequacy of a new module, it should be evaluated by:

   A. The writer
   B. Subject matter specialists
   C. Students
   D. Other instructors
   [✓ E.] All of the above
   F. A, B, and D

15. The major purpose for objectives in individualized instruction is:

    A. To tell instructors what they are to teach
    B. To tell students what the instructor is going to teach
    [✓ C.] To tell students what they must know or learn

16. When a course or program is changed to an individualized instruction approach:

    A. The teacher's job is made easier
    B. Flexible scheduling is possible
    C. Student completion rate is increased
    D. Average student completion time is reduced
    E. All of the above
    [✓ F.] B and C

17. Competencies for an individualized instruction porgram should be developed from:

    [✓ A.] Job or task analysis
    B. Textbooks
    C. Teacher's knowledge
    D. University curriculum guides

18. Which of the following media types would be most appropriate for a student to learn the correct pronunciation of legal terms:

    [✓ A.] Audio tapes
    B. Printed workbook
    C. Slides
    D. Videotapes

19. Which of the following is least adaptable to an individualized instruction setting:

    A. Audio tape
    B. Slides
    C. Videotapes
    [✓ D.] 16 mm films

20. Which of the following would be most appropriate to show the procedure for figuring interest on a loan:

    A. Film
    B. Printed pages
    C. Slides
    D. Audio tape
    [✓ E.] B and D

21. In selecting media type which of the following is most important to consider:

    [✓ A.] Lesson objectives
    B. Cost of raw materials such as film
    C. Need to show action
    D. Ease of editing

22. A slide program should usually start with:

A. A close up of the most important point
[✓ B.] A medium or long shot of the general subject
C. A humorous attention getter

23. Which of the following is generally the best procedure for shots in a slide or motion picture presentation:

A. CU, CU, MS, LS, LS, CU
B. LS, CU, LS, CU, MS, LS
C. CU, MS, MS, LS, CU, LS
[✓ D.] LS, MS, CU, CU, MS, CU

24. A media script for individualized instruction should be written:

A. Similar to a lecture presentation
B. Past tense as telling a story
[✓ C.] Present tense as talking with the student

25. Pictures for an individualized media presentation should be taken so they appear:

[✓ A.] As they would if student was performing task
B. As they would if an instructor was demonstrating task
C. As a close up or enlargement of actual student view
D. As from a top or overhead position

26. The amount of time a slide should remain on the screen will:

A. Be from 5-15 seconds
[✓ B.] Depend on the complexity of the visual
C. Depend on the complexity of the narration
D. Depend on the amount of time available for viewing

True or False: Circle the correct answer.

T [✓ F] 1. The role of the teacher will be the same for an individualized program as for a traditional approach to instructor.

T [✓ F] 2. Individualized instruction and independent study are essentially the same thing.

T [✓ F] 3. Most students will learn best when taught in a classroom lecture arrangement.

[✓ T] F 4. Instructors must consider individual characteristics of their students when designing individualized instruction.

T [✓ F] 5. Under individualized instruction, each student completes all of a variety of learning activities.

[✓ T] F 6. Classroom equipment and space can be more efficiently utilized under an individualized instruction approach as compared to the traditional approach to instructor.

T [✓ F] 7. A slide or video script will present more detailed information than the accompanying student information sheets.

T [✓ F] 8. All of the students in a classroom have essentially the same needs.

[✓ T] F 9. A student with low self-confidence is more likely to succeed in an individualized instruction class than in a traditional approach to learning.

[✓ T] F 10. Positive rewards such as praise are more effective in increasing student learning than negative rewards such as punishment.

T [✓ F] 11. Students will retain more of what they have learned if they are given a few days to "think about their answer" than if they are told immediately if they are right or wrong.

T [✓ F] 12. A module will cover the same amount of information and take approximately the same time to complete as a class lesson plan.

[✓ T] F 13. Learning activities should provide a means by which the student learns immediately if they are right or wrong.

T [✓ F] 14. After a module has been evaluated by the writer and other instructors, it will not need further evaluation.

T [✓ F] 15. An essay test is the most effective method of evaluation.

Complete the following questions as instructed.

1. Mark with an R those items below by which a student's learning and retention will be increased.

____ Humorous non-related stories are included
_R_ Behavior is positively rewarded
_R_ Immediate feedback is provided
____ New information is not related to previously learned materials
_R_ Opportunity for practice is provided

2. Number in order the steps in developing and identifying module content.

_4_ Analyze competencies as to their skill, knowledge, and attitude components
_2_ Arrange competencies in pre-requisite order
_6_ Develop module content outline
_1_ Prepare a list of competencies needed by students
_3_ Identify module and module title
_5_ Arrange skills, knowledge, and attitude components

3. Label the following activities according to their best suited use: S for developing a skill, A for developing an attitude, and I for learning information.

A Role-playing
S Operating model or mock-up
I Reading a textbook
S Practice such as typing a letter
I Writing answers to questions
I Memorization
A Case studies

4. For the following performance objectives, underline the conditions, circle the criterion, and (put in parenthesis the performance required.)

Given a ruler and ten boards of lumber, the student must be able to (determine the board feet) for 9 of the 10.

Using a tachometer and appropriate tools, the student will be able to (set the engine idle speed) within 50 RPM of the manufacturer's recommendations.

Given a medical chart describing a patient's condition in medical terminology, the student will (verbally describe the patient's condition) with 90 percent accuracy.

5. Mark the following key words according to the learning domain for which they are most appropriate. Use an A for Affective, C for Cognitive, and P for Psychomotor.

C Discuss
P Operate
A Accept
C Calculate
C Define
P Build

6. For the following objective, number in order the learning activities most appropriate for the student to master the objective.

OBJECTIVE: Using a tachometer and appropriate tools, the student must be able to set the engine idle speed to within 50 RPM of the manufacturer's recommendations.

1 Practice in the auto lab
2 Watching a demonstration by the instructor
3 Reading a textbook chapter on setting the idle speed

7. For the following objective mark below the best evaluation measure.

OBJECTIVE: Given a ruler and ten lumber pieces, the student must be able to determine the board feet for 9 of the 10.

____ You have 5 2 X 4's--10 feet long and 5 2 X 10's--12 feet long. What is the total number of board feet? ________

____ In the space below tell how to determine the total board feet for a piece of lumber.

_X_ Below give the board feet for the ten pieces of lumber in the northwest corner of the shop.

8. Number in order the steps in developing an instructional module starting with 1 as the first step.

_7_ Field Testing
_1_ Job-Task Analysis
_4_ Writing Information Sheets and Media Script
_5_ Selecting Learning Activities
_3_ Determining Objectives
_2_ Instructional Analysis
_6_ Developing Evaluation Procedures
_8_ Revisions

9. Label with an O the objectives from the following list which are stated in performance terms.

____ The student will develop an appreciation for music after listening to five records.

_O_ The student will measure the diameter of a valve when provided with appropriate tools.

_O_ The student will type a business letter at 60 wpm with 3 errors or less.

____ The student will understand the principles of kinetic energy following a demonstration by the instructor.

____ The student will grasp the significance of the American Econony following the completion of Econ I.

_O_ The student will solve by multiplication the square feet in a given house.

APPENDIX J

MODULE EVALUATION FRAMEWORK

A FRAMEWORK FOR THE EVALUATION OF A LEARNING MODULE

A. THE PURPOSE:

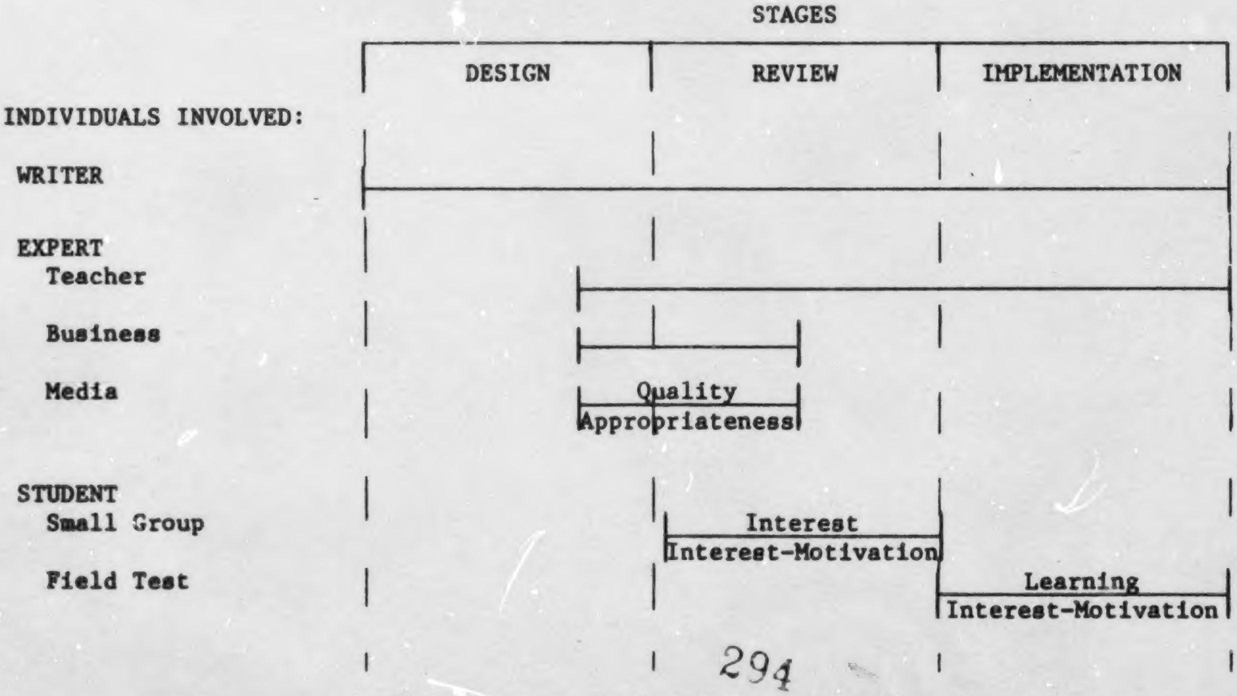
The purpose of an evaluation system for the learning module is to determine the effectiveness of the module, to determine strengths and weaknesses of the module, and to provide a basis for the revision and updating of the module.

B. THE EVALUATION PROCESS:

The evaluation of a learning module involves both summative and formative aspects. It should be evaluated at several points during the development by the writer and outside individuals to see if it meets established criteria for design and content. The module should also be evaluated after it is completed by students and instructors to see if it teaches what it is designed to teach.

Evaluation and review of a module should be conducted throughout the three stages of its development as shown in the following diagram.

EVALUATION PROCESS


STAGES
DESIGN
REVIEW
IMPLEMENTATION
INDIVIDUALS INVOLVED:
WRITER
EXPERT
Teacher
Business
Media
Quality
Appropriateness
STUDENT
Small Group
Interest
Interest-Motivation
Field Test
Learning
Interest-Motivation

During the design stage, the writer should consult others for suggestions as to instructional strategies, content, and media usage, and incorporate their recommendations into the module.

During the review stage, the completed module should be evaluated by other instructors, individuals in business and industry, and media specialists, and tried out with small groups of students. Revisions should then be incorporated as needed.

During the implementation stage, the module must be incorporated into the instructional program and evaluated as to its effectiveness in the course or program by the instructor and students.

C. INDIVIDUALS INVOLVED IN THE EVALUATION PROCESS AND THEIR RESPONSIBILITIES:

1. Writer Self-evaluation. The developer should set a completed module aside for a few days, then evaluate it trying to put himself/herself in the students' place. The TEACHER'S EVALUATION OF A LEARNING MODULE FORM will be helpful in completing this evaluation. The writer will be evaluating not only the informational content of the module, but also the instructional strategies, format, and evaluation procedures. The writer will need to incorporate those suggestions from other evaluating parties into their module.

2. Expert Appraisal. The second step in module evaluation will be to have individuals knowledgeable in curriculum and instruction, the content area, and media design evaluate the module. Each individual should evaluate the module based on their expertise.

a. Experienced teachers in the instructional area should use the TEACHER'S EVALUATION OF A LEARNING MODULE form to evaluate the module. They should be especially aware of the instruction and motivational strategies involved.

During the design and review stages of production, the teacher may wish to go through the module individually as would a student. Although the module will be reviewed by "content experts", the instructor should also evaluate the appropriateness of the objectives based on their background and knowledge.

When evaluating the module during the implementation stage, the teacher will want to compare student progress and their attitude toward the materials with previously used materials.

b. The CONSULTANTS EVALUATION OF A LEARNING MODULE form may be used by individuals involved in business and industry to review the module for content accuracy. They should also review learning activities and procedures given for performing skills or tasks in relation to procedures followed in most work settings.

c. The MEDIA SPECIALIST EVALUATION OF A LEARNING MODULE form should be used by individuals in instructional technology. They will be concerned with the quality, audio and visual, of the mediated presentation, and its effectiveness in presenting the material rather than in the module content.

3. Student Evaluation.

a. Small Group Tryout. Before making the module a part of the instructional program it should be subjected to a small group of students representative of the target student population for a tryout. The feedback from this group will be gathered on the STUDENT EVALUATION OF A LEARNING MODULE form. These students may also be interviewed by the teacher, writer, or instructional development director to obtain information that may not show up on the evaluation form. The module may be rechecked with other small groups as revisions are made.

b. Field Testing. The instructional module should be used with students in the home institution as well as with students in other institutions on a field test basis. Evaluation will be accomplished by students completing the STUDENT EVALUATION OF A LEARNING MODULE form and by teachers utilizing the TEACHER EVALUATION OF A LEARNING MODULE form. Instructors in the field test sites will record student pretest and posttest performance data which will help show the effects of the material on students learning.

D. LONG-TERM EVALUATION:

Long-term evaluation will be conducted by instructors using the materials on an on-going basis. These teachers will be aware when changes in the technical material in the module make parts of the module obsolete or dated.

However, an annual re-evaluation plan should be implemented so that needed updating will not be overlooked. The annual re-evaluation should include at least the instructor self-evaluation and the student small group evaluation.

Results of the module evaluation should be carefully considered and appropriate action taken to revise the materials where necessary. Without a system for module evaluation, the appropriateness, adequacy, technical quality, or effect of the module on the student will not be known.

APPENDIX K

EVALUATION INSTRUMENTS

MEDIA SPECIALIST EVALUATION OF THE LEARNING MODULE

MODULE TITLE: ______________________________ NUMBER: ______________

INSTRUCTIONS: Please read each of the following statements. Circle the term on the right of each statement that most nearly represents your opinion of this module. The terms on the right are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in our revision of this module!

NOTE: If you answered U, D, or SD, please explain below in more detail.

SCRIPT

1. Narrative is free of excess verbage.	SA	A	U	D	SD	NA
2. Narrative is adequate to explain visuals.	SA	A	U	D	SD	NA
3. Correct grammar and pronunciation is used.	SA	A	U	D	SD	NA
4. Narrative has a logical sequence.	SA	A	U	D	SD	NA

DELIVERY-NARRATION

5. Voice is pleasant to listen to, easy to understand, and appropriate for the audience.	SA	A	U	D	SD	NA
6. Voice is forceful, sincere, and emphasizes important points.	SA	A	U	D	SD	NA
7. Rate of narration is appropriate to the complexity and nature of the visuals.	SA	A	U	D	SD	NA
8. Pauses in narrative are effective.	SA	A	U	D	SD	NA
9. There are no distracting background noises.	SA	A	U	D	SD	NA
10. Music inserts are appropriate.	SA	A	U	D	SD	NA
11. Advance tones are audiable, but not objectionable.	SA	A	U	D	SD	NA

VISUAL

12. Visuals were in focus and of the proper exposure.	SA	A	U	D	SD	NA

13. Visuals are relevant and add to the narration of the script. SA A U D SD NA

14. Visuals emphasize the center of interest and do not contain a lot of irrevelant materials. SA A U D SD NA

15. Title slides are attractive, easy to read, and do not contain excessive verbage. SA A U D SD NA

16. Visuals establish and follow a motif; such as type styles, use of color, illustration style, etc. SA A U D SD NA

17. Arrows, outlining, color contrast, and etc. add emphasis to the illustrations. SA A U D SD NA

18. A variety of long, medium, and close shots are used for emphasis and variety. SA A U D SD NA

19. The camera angle is appropriate for subject. SA A U D SD NA

20. The presentation is free of bias (age, sex, race, etc.). SA A U D SD NA

21. Visuals content is free of safety or health hazards. SA A U D SD NA

22. Suggestions for improvement. ______________________________

____

____

____

23. Outstanding characteristics. ______________________________

____

____

____

CONSULTANT: ____________________ MODULE NUMBER: ____________________

DATE: ____________________ MODULE TITLE: ____________________

CONSULTANT'S EVALUATION OF THE LEARNING MODULE

INSTRUCTIONS: Please read each of the following statements. Circle the symbol on the right of each statement that most nearly represents your opinion of this module. The symbols are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in the revision of this module!

NOTE: If you answered U, D, or SD, please explain below in more detail.

---

1. The objectives of the module are representative of the knowledge, attitudes, and skills required. SA A U D SD NA

2. The module contributes toward the achievement of the stated objectives. SA A U D SD NA

3. Information sheets and media narrative contain up-to-date and accurate information. SA A U D SD NA

4. The module information pages and the media script followed a logical and smooth flowing order. SA A U D SD NA

5. Learning activities are representative of the experiences needed to achieve the objectives. SA A U D SD NA

6. Work procedures outlined in information sheets or shown in media presentation are comparable to industry requirements. SA A U D SD NA

7. The module is free of material which will quickly become dated. SA A U D SD NA

8. Correct safety practices and procedures are followed throughout the module. SA A U D SD NA

9. Self checks and/or check lists are technically accurate and complete. SA A U D SD NA

10. The module is free of sex or race bias. SA A U D SD NA

11. What content should be added to this module?

12. What content should be deleted from this module?

13. How could this module be improved?

INSTRUCTIONS: Please read each of the following questions. Check either Yes, No, or Not Applicable in response to each question.

MODULE FORMAT	YES	NO	NA
1. Does the module format include the following components?			
a. Title Page	____	____	____
b. Introduction	____	____	____
c. Objectives	____	____	____
d. Procedures	____	____	____
e. Information Sheets	____	____	____
f. Learning Activities	____	____	____
g. Appropriate Media	____	____	____
h. Evaluation	____	____	____
2. Are the module components logically sequenced?	____	____	____
INTRODUCTION			
3. Is the introduction interesting and motivating?	____	____	____
4. Does the introduction tell:			
a. What the module is about?	____	____	____
b. Why the content is important?	____	____	____
c. When the content will be used?	____	____	____
d. Where the content is useful?	____	____	____
e. How the content will benefit the student?	____	____	____
OBJECTIVES			
5. Are the objectives stated in terms which include:			
a. Key words that identify the desired type and level of performance?	____	____	____
b. The condition under which the desired performance should occur.	____	____	____
c. Minimum standards for acceptable performance?	____	____	____
6. Are the objectives representative of the needs of the occupational area, including:			
a. Technical and related information?	____	____	____
b. Manipulative skills?	____	____	____
c. Social and attitudinal traits?	____	____	____
PROCEDURES			
7. Are the procedures complete and clearly stated?	____	____	____
8. Do the procedures clearly describe any options available to the learner in completing the module?	____	____	____

	YES	NO	NA
9. Do the procedure contain key words indicative of compatibility with the module objectives and evaluation test items?			
10. Do the procedures present materials and activities in a logical order.			
11. Do the procedures explain the use of checkpoints/checklists and the final evaluation?			
INFORMATION SHEETS			
12. Do information sheets contain technically correct information?			
13. Do the information sheets provide all the information needed to complete the module?			
14. Do the information sheets present information in prerequisite order?			
15. Are information sheets written on the learner's comprehension level?			
16. Do illustrations help explain written information?			
LEARNING ACTIVITIES			
17. Do the learning activities clarify:			
a. What the student is to do?			
b. How they are to complete the activity?			
c. Why it is necessary?			
18. Are the learning activities in prerequisite order?			
19. Do the learning activities lead to the attainment of the competencies stated in the objectives?			
20. Are alternate and/or supplemental activites provided to account for?			
21. Do checklists and self-checks assess the learner's progress toward the objectives and provide feedback for learner reinforcement?			
22. Is repetition minimized amoung activity assignments?			
23. Are opportunities for practice provided where proficiency is required?			
24. Do the learning activities require reasonable amounts of time to complete?			

EVALUATION

	YES	NO	NA
25. Are answers to tests and samples of acceptable learning activities provided?			
26. Are evaluation procedures written to measure the cognitive, affective, and psychomotor achievements of objectives?			
27. Are test items worded simply and clearly?			
28. Are pretests and posttests equivalent in form, content, and length?			
29. Do test items include key words compatible with those in the objectives and content?			
30. Do student self-evaluations and tests include clear directions for completing and scoring?			

MEDIA

31. Does the audio and/or visual quality of the media contribute to the learning experience?			
32. Are narrations or scripts technically correct and appropriate?			
33. Does the media presentation attract and maintain the student's attention?			
34. Is the speed of the presentation compatible with the student's learning speed?			
35. Is the type of media realistic in terms of available media equipment?			
36. Is the length of the presentation realistic?			

OVERALL CONSIDERATIONS

37. Are new words defined and used consistently throughout the module?			
38. Is the language technically and grammatically correct?			
39. Is the language written on the learner's reading level?			
40. Is the module internally consistent so that the objectives, activities, and evaluation techniques do not conflict?			

	YES	NO	NA
41. Are safety precautions and instructions provided?			
42. Is the module free of bias (age, sex, race, etc.)?			
43. Are the materials contained in the module easy for students to identify and use?			
44. Is the time required to manage and utilize the module reasonable?			

TEACHER'S GUIDE

	YES	NO	NA
45. Does the teacher's guide contain:			
a. Introduction or Rationale			
b. Objectives or Competencies			
c. Listing of Teaching/Learning Materials			
d. Lesson Outline			
e. Interaction Items			
f. Learning Activities			
g. Evaluation and Key			
h. Suggested Instructional Methods			
i. Media Narration/Script			

TEACHING/LEARNING MATERIALS

	YES	NO	NA
46. Are required audiovisual materials listed?			
47. Are student or instructor references suggested?			
48. Is needed lab or demonstration equipment given?			

SUGGESTED INSTRUCTIONAL METHODS

	YES	NO	NA
49. Are several alternative teaching methods or techniques suggested?			
50. Are appropriate demonstrations recommended?			
51. Do special shop, lab, or classroom arrangements improve the use of the module?			
52. Are student activities described?			
53. Is a schedule for student progress through the course or related modules provided?			

STUDENT EVALUATION OF THE LEARNING MODULE

COURSE: ______________________________

MODULE TITLE: ______________________________ NUMBER: __________

INSTRUCTOR: ______________________________

DATE: ______________________________

SCHOOL: ______________________________

TIME SPENT ON MODULE: ____________________

ATTEMPTED PRETEST _____ YES _____ NO

PASSED PRETEST _____ YES _____ NO

PASSED POSTTEST ON FIRST ATTEMPT _____ YES _____ NO

INSTRUCTIONS: Please read each of the following statements. Circle the symbol on the right of each statement that most nearly represents your opinion of this module. The symbols are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in the revision of this module!

INTRODUCTION

1. The introduction indicated to me why this module was important and how it related to previous modules. SA A U D SD NA

OBJECTIVES

2. I understood each of the module objectives before I began completing the module. SA A U D SD NA

3. I felt that the objectives were important. SA A U D SD NA

4. The objectives indicated what I was to achieve, how I was to achieve and what was acceptable achievement. SA A U D SD NA

PROCEDURES

5. The procedures indicated the steps I was to follow in completing the module. I knew what I was to do. SA A U D SD NA

6. The procedures indicated options that were available to me. SA A U D SD NA

INFORMATION SHEETS

7. Information sheets provided me with all the information needed to complete the module. SA A U D SD NA

8. The information sheets were written so they were easy to understand and follow. SA A U D SD NA

9. The illustrations accompanying the information sheets were helpful in clarifying the information. SA A U D SD NA

LEARNING ACTIVITIES

10. The learning activities were clear and assisted me in achieving the objectives. SA A U D SD NA

11. The learning activities were boring. SA A U D SD NA

12. Opportunities to apply or practice what I learned were provided. SA A U D SD NA

EVALUATION

13. I was aware of my progress as I proceeded through the module. SA A U D SD NA

14. I felt the tests measured my achievement of the objectives. SA A U D SD NA

15. The tests contained clear directions; I knew how I was to respond to each item. SA A U D SD NA

16. The checkpoints, checklists, and/or self-tests helped me determine if I was ready for the tests. SA A U D SD NA

MEDIA

17. The media presentation moved too fast for me to learn the materials. SA A U D SD NA

18. The media presentation was too long. SA A U D SD NA

19. The picture quality was good. SA A U D SD NA

20. The sound quality was good. SA A U D SD NA

21. The picture matched the sound content. SA A U D SD NA

22. The media presentation followed a logical order. SA A U D SD NA

23. The media equipment operated properly. SA A U D SD NA

24. The media equipment was easy to use. SA A U D SD NA

25. The media equipment was available when needed. SA A U D SD NA

26. The media presentation helped me understand the content. SA A U D SD NA

27. The media presentation was interesting to me. SA A U D SD NA

OVERALL

28. New words were defined throughout the module. SA A U D SD NA

29. I would prefer this approach to learning be used more frequently. SA A U D SD NA

30. The instructor was available for assistance when needed. SA A U D SD NA

31. The things I liked best about this module were: ____________________

____

____

32. The things I liked least about this module were: ____________________

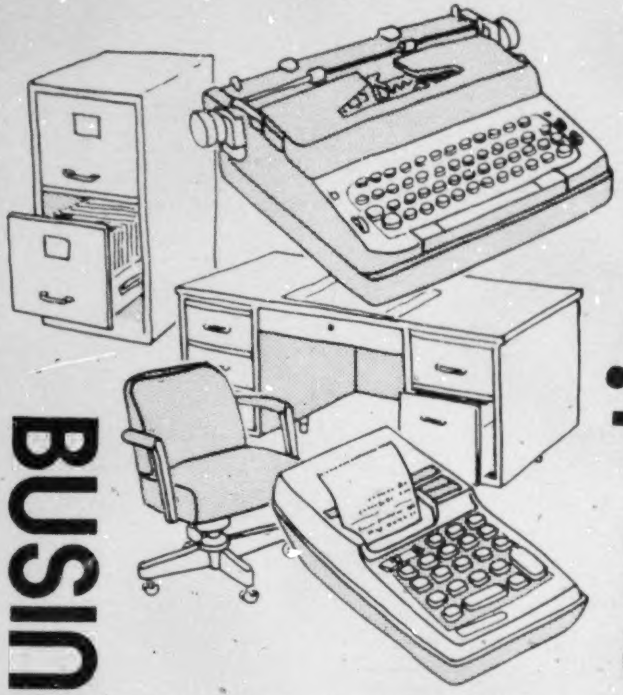
____

____

APPENDIX L

SAMPLE BROCHURES

INDIVIDUALIZED MEDIATED INSTRUCTIONAL MATERIALS

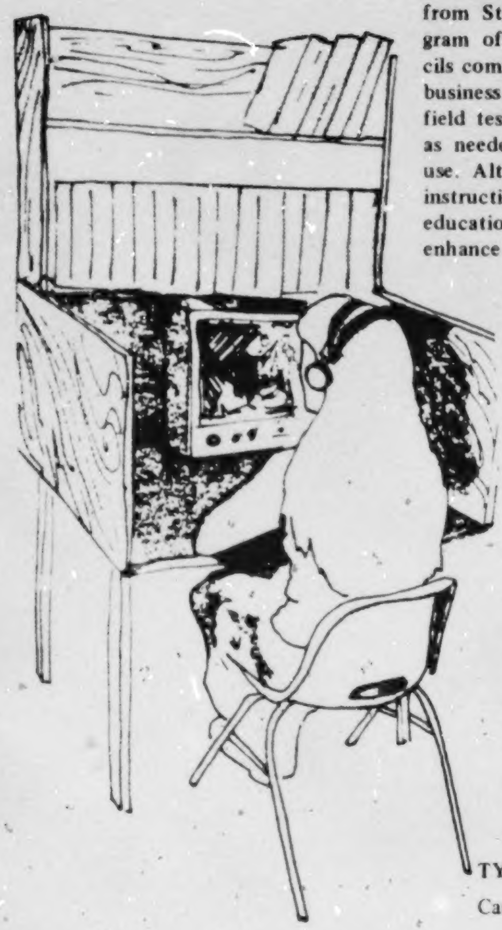


BUSINESS and OFFICE Occupations

Produced by and Available from . . .

THE MEDIA CENTER
State Fair Community College
Sedalia, MO 65301
(816) 826-7100 Ext. 48

The following materials were developed by instructors and media specialists at State Fair Community College and Area Vocational/Technical School utilizing input from State Department of Education program officers and statewide advisory councils composed of professional educators and business representatives. They have been field tested in Missouri institutions, revised as needed, and are now available for your use. Although developed for individualized instruction, they work equally well in all educational settings. These materials can enhance your educational program.



Each presentation is an independent complete unit. A Student Manual and Instructor Guide are included. Presentations are mediated as needed.

THE STUDENT MANUAL INCLUDES:

Lesson Plan with
Objectives
Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S GUIDE INCLUDES:

Lesson Plan
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

TYPES OF MEDIA

Cassette Tapes — 35 MM Slides
Programmed Learning Packet

A school purchase order should accompany each order. You will be billed when your order is shipped. Please notify the Media Center within ten days of receiving a billing if the shipment is damaged or lost. All orders are considered as final unless return is approved by the Media Center Director.

Visitors are welcome to preview materials at the Media Center. In order to control prices, materials can not be sent for preview. However, if you wish additional information, please write for a sample script.

901 - 904 LEGAL TERMINOLOGY Available Sept. 1, 1979

Description: Presentation of words and terms used frequently by office workers in legal offices, real estate offices and banks. The words are divided into modules 901-litigation, 902-real estate, 903-probate, and 904-business. Student materials and tapes guide the student through exercises designed to aid the student in learning definitions, spellings and pronunciations.

Materials Included: Instructor's Guides and Key, Programmed Student Learning Packets, 19 Cassette Tapes.

Approximate Costs: $ 45.00 - Additional Student Programmed Packets $4.50
Individual Modual Prices

901	Litigation	17.00	Student Programmed Packets	$1.75
902	Real Estate	10.00	Student Programmed Packets	$1.25
903	Probate	10.00	Student Programmed Packets	$1.25
904	Business	10.00	Student Programmed Packets	$1.25

WATCH FOR NEW MATERIALS

201	Men and Women in Office Occupation
202	It's About Time (Recruiting Presentation for Non-traditional jobs in Business)
203	Upward Mobility for Women
206	Are You Ready? (New Trends in Office Machines for Recruiting Student)
535	Transcription Projects
560	Telephone Communications
621	Subject Filing
622	Record Retention
715	Human Relations
729	Classes of Mail
730	New Addressing Format

MATERIALS ALSO AVAILABLE FOR STUDENT PREPARATION FOR EMPLOYMENT

PEP-101	Importance of Understanding Job Hunting Techniques
PEP-102	What Do I Want To Do?
PEP-103	Helping Yourself Find A Job
PEP-104	Preparing For An Interview
PEP-105	The Resume
PEP-106	Communications In The Job Search
PEP-107	The Interview And Follow-Up
PEP-108	Industry Requirements Of Employees
PEP-109	What You Should Know About Wages Fringe Benefits, Etc.

801 THE EMERGENCE OF WORD PROCESSING

(Available Sept. 1, 1979)

Description: Traces the background and development of word processing, the differences between word processing and traditional office systems, and the reasons why word processing is used.

Material Included: Student Manual, Instructor's Guide and Checkpoint Key, and Slide/Tape Presentation.

Approximate Cost: $25.00

802 WORD PROCESSING EQUIPMENT (INPUT AND OUTPUT)

(Available Sept 1, 1979)

Description: Designed to introduce students to dictation and keyboard equipment. Equipment is categorized in general terms, and products of various leading manufacturers are included.

Materials Included: Student Manual, Instructor's Guide and Checkpoint Key and Slide Tape Presentation.

Approximate Cost: $25.00

803 WORD PROCESSING JOB DESCRIPTIONS AND CAREER OPPORTUNITIES (Available Jan. 1, 1980)

Description: Introduces the student to possible job titles and related responsibilities and salaries of word processing administrative and correspondence secretaries. Also included is an explanation of how organization of the WP system provides for greater supervisory/management positions.

Materials Included: Student Manual, Instructor Guide and Checkpoint Key, and Slide Tape Presentation.

Approximate Cost: $25.00

804 IMPLEMENTING WORD PROCESSING (Available Jan. 1, 1980)

Description: Includes:

1. Feasibility study (why and how to conduct);
2. Selling top management (how to overcome resistance to change);
3. Personnel selection and interviews;
4. Selecting equipment; and
5. Developing procedures manuals.

Materials Included: Student Manual, Instructor Guide and Checkpoint Key, and Slide/Tape Presentation

Approximate Cost: $25.00

CATALOG FOR NON-MISSOURI INSTITUTIONS

BUSINESS AND OFFICE MODULES AVAILABLE APRIL 1, 1979
From The MEDIA CENTER
State Fair Community College
Sedalia, MO

1000 STUDENT ORIENTATION TO INDIVIDUALIZED INSTRUCTION– BUSINESS AND OFFICE

Description: Presentation of the philosophy of individualized instruction, the advantages to the student, and tips about pitfalls to avoid. Also includes an explanation of feelings the student may encounter in a transition from traditional to individualized instructional methods.

Materials Included: Instructor Guide and Slide/Tape Presentation (44 slides/1 cassette tape)

$14.55

14 INTRODUCTION TO THE IBM MODEL D TYPEWRITER

Description: Explanation of operation of all machine parts of the IBM Model D typewriter.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Slide/Tape Presentation (25 slides/1 cassette tape)

$11.50 - additional Student Manuals are $ .07

15 INTRODUCTION TO THE IBM SELECTRIC TYPEWRITER

Description: Explanation of operation of all machine parts of the IBM Selectric typewriter.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (25 slides/1 cassette tape)

$10.65 - additional Student Manuals are $ .07

16 AND 27 MAKING CORRECTIONS ON TYPEWRITTEN COPY

Description: Techniques for correcting errors on typewritten copy by using the following methods: erasing, correction tape, liquid correction products, correction film, and correcting typewriter.

Presentation 16: Erasing and Correcting Errors
Presentation 27: Correction Products other than Erasers

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (61 slides/2 cassette tapes)

$22.75 - additional Student Manuals are $ .12
Separate Presentations are $11.40 each

500 - 505 IBM EXECUTIVE TYPEWRITER MINI COURSE

Description: A complete instructional package which includes: proportional spacing, margin setting, tab setting, error correcting, centering, expand and shadow printing, line drawing, figure typing, tabulating, justifying, manuscript typing, and changing the film ribbon.

Materials Included: Student Manual, Programmed Student Learning Packet, Checkpoint Sheet, Instructor Key and Guide, Six Slide/Tape Presentations (116 slides/6 cassette tapes)

$44.30 - additional Student Manuals are $ .33

510 - 512 SPIRIT OR LIQUID DUPLICATION

Description: Preparing masters for liquid or spirit duplication, preparing the A.B. Dick liquid duplicator for operation, and operating the liquid duplicator.

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Key and Guide, and Three Slide/Tape Presentations (77 slides/3 cassette tapes)

$26.70 - additional Student Manuals are $ .20
Presentation 510 ONLY - $12.00

520 TEN-KEY ADDING MACHINE OPERATION

Description: Correct finger position for the ten-key calculator, drill for development of touch control, and operation of the Olivetti-Underwood ten-key adder.

Materials Included: Student Manual, Performance Tests, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (26 slides/1 cassette tape)

$11.65 - additional Student Manuals are $ .08

720 - 724 THE METRIC SYSTEM

Description: Prepared to teach students the metric system–not conversion. Includes a visual presentation and application problems.

Materials Included: Student Manual, Application Problems, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (127 slides/5 cassette tapes)

$43.70 - additional Student Manuals are $ .20

725 - 726 INCOMING MAIL PROCEDURES

Description: Presents information from the viewpoint of the secretary. Includes opening the mail, date-and-time stamping, routing, preparing the mail for presentation, presenting the mail, processing the mail during employer's absence, special situations, and post office boxes.

Materials Included: Student Manual, Instructor's Guide and Key, and Two Slide/Tape Presentations (139 slides/2 cassette tapes)

$40.65 - additional Student Manuals are $ .35

U.S. MAIL
AIR MAIL
U.S. POSTAGE

727 - 728 OUTGOING MAIL PROCEDURES (Available Sept. 1, 1979)

Description: An informational and demonstrational presentation covering outgoing mail from the standpoint of the secretary. Includes folding and inserting letters, mailing currency, interoffice envelopes, sealing envelopes, stamps, stamped envelopes and cards, metered mail, recalling mail, tracing, using collection boxes properly, volume mailings, and alternatives to the mail.

Materials Included: Student Manual, Instructor's Guide and Key, and Two Slide/Tape Presentations (150 slides/2 cassette tapes)

Approximate Cost: $40.00

620 INTRODUCTION TO NUMERIC FILING New for 1979-80

Description: An introduction to numeric filing systems including businesses where numeric filing is used and advantages of numeric filing systems. Three specific types of numeric filing systems are introduced: serial filing, terminal digit filing, and middle digit filing. Work sheets are provided for students to do short exercises while viewing the presentation.

Materials Included: Student Manual, Instructor's Guide, Checkpoint Sheet, and Slide/Tape Presentation (61 slides/cassette tape)

$18.35 - additional Student Manuals are $ .14

650-652 ALPHABETIC FILING RULES

Description: Visual presentation of the alphabetic filing rules (Southwestern Rules) with application problems and exercises.

Materials Included: Student Manual, Checkpoint Sheet, Application Problems, Instructor Guide and Key, and Slide/Tape Presentations (151 slides/3 cassette

$48.00 - additional Student Manuals are $ .75

700 OFFICE PROCEDURES TIPS

Description: Includes tips for collating, routing, desk organization, supply cabinet organization, housekeeping duties, responsibilities before leaving the office, etc.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (65 slides/1 cassette tape)

$19.20 - additional Student Manuals are $ .05

710 PROFESSIONALISM AND ETHICS IN BUSINESS

Description: Presentation of proper attitudes for the professional in business and an introduction to the concept of continuing education after employment and the value of association with professional organizations. Also includes a discussion of the traits required for ethical behavior–trustworthiness, dependability, loyalty, and others.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (91 slides/1 cassette tape)

$25.10 - additional Student Manuals are $ .18

521 ELECTRONIC PRINTING CALCULATOR

Description: Presentation of the use of machine parts (Sharp Model CS-523) and steps to follow for completion of various problems.

Materials Included: Student Manual, Performance Tests, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (20 slides/1 cassette tape)

$9.45 - additional Student Manuals are $ .08

522 TEN-KEY KEYBOARD OPERATION New for 1979-80

Description: An introduction to those office machines utilizing the basic ten-key keyboard. It also provides basic operational information for the ten-key adder, printing calculator, electronic printing, and electronic display calculaters.

Materials Included: Student Manual, Checkpoint Sheet, Instructor's Guide, and Slide/Tape Presentation (45 slides/cassette tape)

$12.45 - additional Student Manuals are $ .11

530, 531, AND 532 DICTATION-TRANSCRIPTION MACHINE OPERATION

Description: Identification of machine parts, index slip, dictation techniques, and transcription techniques.

Presentation 530: IBM Model 172 Executary
Presentation 531: IBM Model 213 Executary
Presentation 532: Dictaphone Cassette Master

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (29 slides/1 cassette tape)

$12.45 - additional Student Manuals are $ .14

533 SONY SECUTIVE MODEL BM-34 DICTATION-TRANSCRIPTION MACHINE OPERATION

Description: Describes operating parts of the maching and explains basic operation.

Materials Included: Student Manual, Instructor's Guide, Checkpoint Sheet, and Slide/Tape Presentation (48 slides/1 cassette tape)

$15.35 - additional Student Manuals are $ .08

534 IBM 6:5 CARTRIDGE SYSTEM DICTATION-TRANSCRIPTION MACHINE OPERATION

Description: Describes operating parts of the machine and explains basic operation

Materials Included: Student Manual, Instructor's Guide, Checkpoint Sheet, and Slide/Tape Presentation (40 slides/1 cassette tape)

$13.65 - additional Student Manuals are $ .08

540 CUTTING A STENCIL

Description: Presentation of parts of a stencil, markings on a stencil, preparation of typewriter for stencil typing, and error correction techniques.

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (28 slides/1 cassette tape)

$11.90 - additional Student Manuals are $ .11

541 AND 542 STENCIL DUPLICATION

Description: Presentation of the parts of the stencil duplicator (A.B. Dick) and the adjustments to be made to achieve clear, well-balanced copy.

Presentation 541: Introduction to the Stencil Duplicator
Presentation 542: Operating the Stencil Duplicator

Materials Included: Student Manual, Sample Problems, Checkpoint Sheets, Instructor Guide and Key, and Slide/Tape Presentations (77 slides/2 cassette tapes)

$25.85 - additional Student Manuals are $ .07

550-553 CLEANING THE TYPEWRITER

Description: Informational presentation of the requirements for daily and weekly care of the typewriter, demonstration of use of type cleaners, demonstration of how to clean the IBM Selectric, and demonstration of how to clean the IBM Model D and Executive typewriters.

Presentation 550: Caring for the Electric Typewriter
Presentation 551: Proper Use of Type Cleaners
Presentation 552: Cleaning the IBM Selectric Typewriter
Presentation 553: Cleaning the IBM Model D and Executive Typewriters

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentations (202 slides/4 cassette tapes)

$61.60 - additional Student Manuals are $ .14

Separate Presentations are $16.25 each

570 - 572 BURROUGHS ACCOUNTING COMPUTER OPERATION

Description: Presentation of the machine parts and their application in an introductory format, followed by specific instructions for preparation of payroll and accounts payable records for the Burroughs L6000.

Presentation 570: Introduction
Presentation 571: Payroll Procedures
Presentation 572: Accounts Payable Procedures

Materials Included: Student Manual, Application Problems, Instructor Key and Guide, and Slide/Tape Presentations (102 slides/3 cassette tapes)

$66.80 - additional Student Manuals for 570 and 571 are $ .75

Additional Student Manuals for 572 are $ .90

Presentations are $24.00 each

580 - 582 OFFSET DUPLICATION

Description: Presentation of preparation of the offset master by typing, drawing or using photocopy equipment the operating parts of the offset duplicator; and how to use the machine to produce clear, well-balanced copy.

Presentation 580: Preparaing Offset Masters
Presentation 581: Preparing the Offset (A.B. Dick Model 324) for Operation
Presentation 582: Operation of the Offset (A.B. Dick Model 324) Duplicator

Materials Included: Student Manual, Sample Projects, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentations (73 slides/3 cassette tapes)

$27.20 - additional Student Manuals are $ .14

Presentation 580 ONLY - $8.70

605 - 609 ALPHABETIC FILING RULES (GREGG RULES)

Description: Visual presentation of the alphabetic filing rules (Gregg Rules) with application problems and drill exercises.

Materials Included: Student Manual, Checkpoint Sheet, Application Problems, Instructor Guide and Key, and Slide/Tape Presentations (144 slides/5 tapes)

$52.30 - additional Student Manuals are $1.30

NOTE: Presentations are also available with Slides in Carousel Trays. Add $6.00 for 80 Slide Trays, and $7.50 for 140 Slide Trays.

PEP-107 THE INTERVIEW AND FOLLOWUP

Description:	Reemphasizes preparation prior to an interview, and the purposes of an interview for both the applicant and the employer. Discusses what to expect during an interview, explains desirable dress and behavior during the interview.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (61 slides/1 cassette tape) in Carousel Tray.
Cost:	$18.70 - additional Student Manuals are $.35

PEP-108 INDUSTRY REQUIREMENTS OF EMPLOYEES

Description:	Discusses the general lines of authority and communications in business, emphasizes good work attitudes and habits expected by employers, and discusses personal characteristics important for employment.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (50 slides/1 cassette tape) in Carousel Tray.
Cost:	$16.15 - additional Student Manuals are $.25

PEP-109 WHAT YOU SHOULD KNOW ABOUT WAGES, FRINGE BENEFITS, TAXES, FEDERAL LAWS AND REGULATIONS

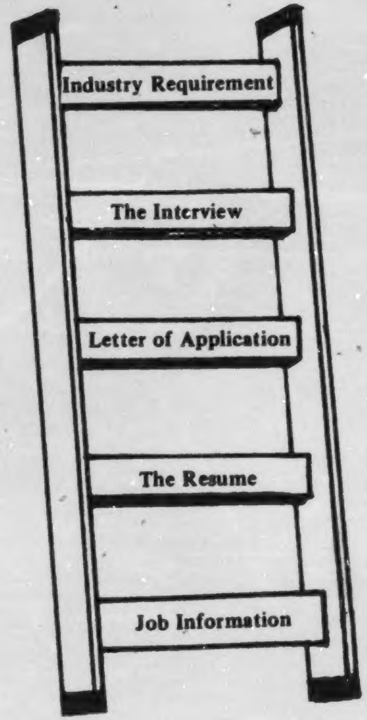
Description:	Describes the different ways salaries can be figured, explains the types of forms to be completed when starting a job, describes employee benefits and incentives, and discusses the rights of employers and employees in employment relationships.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation, (118 slides/1 cassette tape) in Carousel Tray.
Cost:	$31.55 - additional Student Manuals are $.65

Individualized Mediated Instructional Materials are also available for:

- **Soils**
- **Health Occupations**
- **Business and Office Occupations**
- **Welding**

PREPARING FOR EMPLOYMENT

Each presentation is an independent complete unit. A Student Manual and Instructor Guide are included. A cassette tape and slide program accompanies each module.



Available from. . .

THE MEDIA CENTER
State Fair Community College
Sedalia, MO 65301
(816) 826-7100 Ext. 48

The modules described below have been developed by counselors and placement officers at State Fair Community College and produced by the Media Center. They have been field tested in Missouri educational institutions and are now available for your use. These materials are designed so they can be utilized individually by students or in classroom settings. They are applicable to junior and senior high school and area vocational school students, as well as community college students. Practical student exercises are included.

CATALOG FOR NON-MISSOURI INSTITUTIONS

PREEMPLOYMENT PREPARATION MODULES
AVAILABLE OCTOBER 1, 1979
From the MEDIA CENTER

PEP-101 IMPORTANCE OF UNDERSTANDING JOB-HUNTING TECHNIQUES

Description:	Emphasizes the need for careful planning in looking for and applying for a job. Describes the steps in conducting a job search and explains why employers select one applicant over another.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (42 slides/1 cassette tape) in Carousel Tray
Cost:	$14.55 - additional Student Manuals are $.35

PEP-102 WHAT DO I WANT TO DO?

Description:	Discusses major personal characteristics that influence satisfaction with an occupation, explains how certain values and life-style preferences are affected by occupational choice. Helps students identify major interest areas according to Holland's topography, and the self-directed search.
Materials Included:	Student Manual with Self-Directed Search Instrument, Instructor's Packet, Slide/Tape Presentation (64 slides/1 cassette tape) in Carousel Tray.
Cost:	$21.30 - additional Student Manuals are $2.10

PEP-103 HELPING YOURSELF FIND A JOB AND EVALUATING EMPLOYMENT OPPORTUNITIES

Description:	Discusses the different sources a job seeker can utilize to find a job, and describes how and why it is important to utilize these available sources. Discusses things to look for in a potential job.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (105 slides/1 cassette tape) in Carousel Tray.
Cost:	$28.35 - additional Student Manuals are $.30

PEP-104 PREPARING FOR AN INTERVIEW

Description:	Explains the importance of personal grooming and researching a company before the interview. Describes how to organize needed materials for the interview and discusses common questions an employer may ask, and the applicant may wish to ask.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (22 slides/1 cassette tape) in Carousel Tray.
Cost:	$10.20 - additional Student Manuals are $.25

PEP-105 THE RESUME

Description:	Stresses the importance of a well-developed resume; gives sample resumes; explains information to be included on a resume; and describes how to write a resume.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (119 slides/1 cassette tape) in Carousel Tray.
Cost:	$31.45 - additional Student Manuals are $.45

PEP-106 COMMUNICATIONS IN THE JOB SEARCH

Description:	Discusses the importance of effective communications in a job search. Gives examples and explains how to develop the (a) letter of inquiry or application, (b) letter of appreciation for an interview, (c) letters of acceptance or rejection of a job offer, and (d) letters of resignation. Explains the type of information commonly found on an employment application.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (48 slides/1 cassette tape) in Carousel Tray.
Cost:	$16.25 - additional Student Manuals are $.55

NOTE: Presentations are also available with Slides in Carousel Trays. Add $6.00 for 80 Slide Trays, and $7.50 for 140 Slide Trays.

W78-140 INTRODUCTION TO PIPE WELDING AVAILABLE NOVEMBER 1, 1979

Description:	Explains the importance of pipe welding. Gives the most commonly used methods of cutting and welding pipe in industry today. Gives basic welds students must master before they can successfully weld pipe.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (39 slides)
Cost:	$21.40 - additional Student Manuals are $.35

W78-141 PIPE WELDING TECHNIQUES AVAILABLE NOVEMBER 1, 1979

Description:	Explains Code Welding and the two major methods of inspecting and testing welds. Gives procedures for making the rolling butt joint, horizontal butt joint welding uphill, the horizontal butt joint welding downhill, and the vertical butt joint using the stringer and weave techniques.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (85 slides)
Cost:	$23.80 - additional Student Manuals are $.50

W 79-142 PIPE FITTINGS AND BASIC PIPE FITTING
AVAILABLE JANUARY 1, 1980

Description:	Identifies pipe fittings commonly used in pipe welding. Describes how to layout, cut, and weld fabricated fittings such as the cap, tee and lateral branch, elbows, and offsets.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	$25.00

W78-150 ORTHOGRAPHIC PROJECTION, VISUALIZATION, AND DIMENSION OF WELDMENT PRINTS

Description:	Describes principles of orthographic projection. Explains auxiliary and sectional views, the alphabet of lines, tolerance dimensions, finish marks, and general and specific notes.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (86 slides)
Cost:	$24.85 - additional Student Manuals are $.90

CATALOG FOR NON-MISSOURI INSTITUTIONS

WELDING MODULES AVAILABLE AUGUST 1, 1979 FROM THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE

W77-1000 INTRODUCTION TO INDIVIDUALIZED INSTRUCTION

Description:	A presentation on the philosophy and use of individualized instruction, the advantages to the student and tips about pit falls to avoid.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (55 slides)
Cost:	$17.35 - additional Student Manuals are $.25

W76-101 GENERAL WELDING SHOP SAFETY

Description:	Operating procedures and safety practices used while operating machines that shear, form, drill, and position metals to be welded.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (41 slides/1 cassette tape)
Cost:	$14.30 - additional Student Manuals are $.25

W76-102 SHIELDED METAL ARC WELDING SAFETY

Description:	Safety practices required for the safe and efficient operation of metal arc welding machines. Topics covered include the handling of hot metal and protection from splatter metal, toxic fumes, electrical shock, and harmful rays produced while welding.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (67 slides/1 cassette tape)
Cost:	$19.95 - additional Student Manuals are $.25

Presentations are also available with Slides in Carousel Trays. Add $6.00 for 80 Slide Trays, and $7.50 for 140 Slide Trays.

W77-103 FUEL GAS WELDING SAFETY

Description:	Safety practices required for fuel gas welding, cutting, and brazing. Important topics of this module include the care, handling, and operation of cylinders and gases, regulators, hoses, and torches.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (52 slides/1 cassette tape)
Cost:	$16.75 - additional Student Manuals are $.30

W77-104 INTRODUCTION TO THE PROCESS OF METAL ARC WELDING

Description:	Operating principles used to produce welding current with the AC transformer, transformer rectifier and motor-driven generator welder. Topics covered include transformer and generator action, polarity setting, the flux coated electrode fusion process and standards for rating welding machines.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (51 slides/1 cassette tape)
Cost:	$16.55 - additional Student Manuals are $.30

W77-105 SETTING UP AND OPERATING THE METAL ARC WELDING MACHINE

Description:	This unit is designed to instruct the student to set up a metal arc welder for operation, learn to strike arcs, and run continuous beads with a 1/8 inch, E-6013 electrode inthe flat position. Appropriate student exercises are included.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (55 slides/1 cassette tape)
Cost:	$17.35 - additional Student Manuals are $.30

TIG

W78-130 THE BASICS OF TIG WELDING (Available October 1, 1979)

Description:	Gives the metals that can be welded with the TIG machine and the advantages for TIG welding. Describes the source of heat for welding, shielding from the atmosphere, and filler metals and gases used. Describe the differences in welding characteristics for DCSP, DCRP, and ACHF.
Materials Include:	Student Manual, Instructor's Packet, Slide/Tape Presentation (60 slides)
Cost:	$18.55 - additional Student Manuals are $.35

W78-131 SETTING THE TIG WELDING MACHINE AND WELDING BASIC JOINTS (Available October 1, 1979)

Description:	Explains how to set and adjust the TIG welding machine for the metal used and the job being done. Describes how to weld the basic joints with the TIG machine.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	$21.55 - additional Student Manuals are $.45

W 79-132 OUT OF POSITION TIG WELDING FOR RELEASE JANUARY, 1980

Description:	Describes how to weld aluminum and stainless steel in the horizontal, vertical, and overhead positions. Includes procedures for equipment setup and factors affecting weld quality.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (65 slides)
Cost:	$19.65 - additional Student Manuals are $.40

MIG

AVAILABLE JANUARY 1, 1980

W79-120 THE BASICS OF MIG WELDING

Description:	Describes the Gas Metal Arc Welding processes, (MIG), including gases and filler metal used, welder power units, and types of metal transfer. This module also gives information required to calculate and set the MIG unit for operation.
Materials Included:	Student Manual, Instruction Packet, Slide/Tape Presentation
Cost:	Approximately $20

W79-121 SETTING THE MIG WELDING MACHINE AND WELDING IN THE FLAT POSITION

Description:	This module covers welding various thicknesses of mild steel in the flat position with CO_2 shielding gas. Ten operating variables that affect MIG welding plus operational maintenance of MIG welding are covered.
Materials Included:	Student Manual, Instruction Packet, Slide/Tape Presentation
Cost:	Approximately $20

W79-122 ALL POSITION WELDING WITH THE GAS METAL ARC WELDING UNIT

Description:	Designed to teach the methods required for welding horizontal, vertical and overhead, positions with the MIG welding unit, various student projects are incorporated to give students welding experience.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	Approximately $20

W77-106 BASIC JOINTS USED IN WELDING

Description:	Covers the five basic joints used in welding fabrication, listing the strengths and weaknesses of each type of joint. Other topics include root spacing, and the edge preparation used to insure sufficient penetration for joint construction with various thicknesses of metal.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presenation (62 slides/1 cassette tape)
Cost:	$20.15 - additional Student Manuals are $.35

W77-107 SHIELDED METAL ARC ELECTRODES

Description:	Outlines the basic type of flux coated electrodes used in welding shops. Information covering flux coating electrode types, classification, care and storage, and recommended uses are included.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (57 slides/1 cassette tape)
Cost:	$17.95 - additional Student Manuals are $40

W77-108 BASIC WEAVE PATTERNS AND PADDING

Description:	Describes common weave procedures and patterns used in shielded metal arc welding. An explanation of how these patterns are used in industry is included. An exercise is provided to give students experience in using weave patterns and padding.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (69 slides/1 cassette tape)
Cost:	$19.55 - additional Student Manuals are $.30

W77-109 SQUARE GROOVE BUTT AND LAP JOINT SHIELDED METAL ARC WELDING

Description:	Designed to teach students the fundamental methods of fabricating square groove butt, and lap joints on metal sheet. Special information is covered on welding techniques, joint uses and heat expansion. Exercises are included to give students practical experience.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (61 slides/1 cassette tape)
Cost:	$19.25 - additional Student Manuals are $.45

W77-110 WELDING HEAVY PLATE

Description:	Shows correct procedures for welding basic joints from heavy plate using multi-pass welding in the flat position. Edge preparation for single and double bevel, single and double vee, and single and double u is shown. Exercises for student experience are provided.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation.
Cost:	$12.20 - additional Student Manuals are $.30

W78-111 SINGLE AND MULTIPLE PASS FILLET WELDS

Description:	Shows correct procedures for welding single and multiple pass fillet welds in the flat position on sheet and plate metal using the shielded metal arc process. Special emphasis placed on correct edge preparation and controlling metal distortion. Exercises for student experience are included.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	$14.05 - additional Student Manuals are $.25

W79-112 METAL ARC WELDING IN THE HORIZONTAL POSITION

Description:	Covers horizontal position welding with the shielded metal arc welding unit. Describes the procedures for making quality horizontal welds. Exercises for student experience are included.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	$19.10 - additional Student Manuals are $.25

W78-113 VERTICAL POSITION SHIELDED ARC WELDING

Description:	Identifies the factors that determine when to weld in the vertical up or vertical down positions. Describes the procedures for making a vertical up and vertical down weld.
Materials Include:	Student Manual, Instructor's Packet, Slide/Tape Presentation (49 slides/1 cassette tape)
Cost:	$15.95 - additional Student Manuals are $.20

W79-114 OVERHEAD POSITION METAL ARC WELDING

Description:	Covers overhead position welding with the shielded metal arc welding unit. Describes the techniques for making quality overhead welds. Exercises for student experience are included.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation
Cost:	$19.90 - additional Student Manuals are $.25

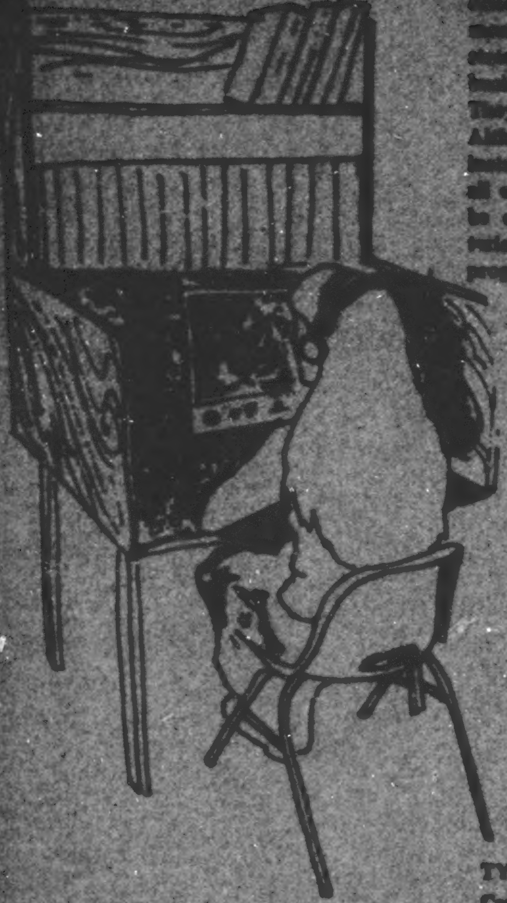
AN INSTRUCTOR'S GUIDE TO THE DEVELOPMENT OF INDIVIDUALIZED INSTRUCTION MODULES AVAILABLE NOVEMBER 1, 1979

Description:	Gives examples and presents the procedures to be followed in the development of a module including student and instructional analysis, content organization, learning activities, format, evaluation, media selection and script writing. Approximately 150 pages
Cost:	$4.50

HEALTH OCCUPATIONS

Produced by and Available from . . .

THE MEDIA CENTER
State Fair Community College
Sedalia, MO 65301
(816) 826-7100 Ext. 48



The following materials were developed by health occupations instructors and media specialists of [illegible] Falls Community College and Area Vocational/Technical School utilizing input from State Department of Education program officers and statewide advisory councils composed of business and industry representatives. They are now available for your use. Although developed for individualized instruction, they work equally well in all educational settings. We are happy to be of service to you and feel these materials will enhance your educational program.

Each presentation is an independent complete unit. Included are a Student Manual and Instructor's Packet. Presentations are mediated as needed.

THE STUDENT MANUAL INCLUDES:

Lesson Objectives
Study Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S PACKET INCLUDES:

Lesson Plan Including Outline
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

TYPES OF MEDIA

Cassette Tapes 35 MM Slides
Programmed Learning Packet
3/4" Color Video Cassettes

A school purchase order should accompany each order. You will be billed when your order is shipped. Please notify the Media Center within ten days of receiving a billing if the shipment is damaged or lost. All orders are considered as final unless return is approved by the Media Center Director.

Visitors are welcome to preview materials at the Media Center. In order to control prices, materials cannot be sent for preview. However, if you wish additional information, please write for a sample packet.

HO76-405 FACTORS INFLUENCING BEHAVIOR - PART II PATTERNS OF ADJUSTMENT

Description:	Describes various patterns of adjustment (defense mechanisms) and gives specific examples of each. Relates these patterns of adjustment to the health field.
Materials Included:	Student Manual, Instructor Packet, Slide/Tape Presentation (71 slides/2 cassette tapes).
Cost:	$23.20 - additional Student Manuals are $.45

HO76-406 LEARNING HOW TO LEARN

Description:	A comprehensive explanation of methods and principles to use to study better and learn more in less time. The lesson includes improving concentration, planning a study schedule, classroom skills and etiquette, guidelines for writing examinations, and also explains a specific method of studying.
Materials Included:	Student Manual, Instructor Packet, Slide/Tape Presentation (65 slides/2 cassette tapes).
Cost:	$22.20 - additional Student Manuals are $.35

HO76-407 THE HEALTH CARE TEAM

Description:	Introduces the student to the facets of the health care world including types of health care facilities and the functions of each hospital department. It also explains guidelines for appropriate behavior with patients, physicians, health care team members, and those in authority.
Materials Included:	Student Manual, Instructor Packet, Cassette Tape.
Cost:	$4.40 - additional Student Manuals are $.50

HO76-408 - PATIENT RELATIONSHIPS

Description:	Discusses the basic components of relationships and applies them to the relationship between a health care worker and a patient.
Materials Included:	Student Manual, Instructor Packet, Cassette Tape.
Cost:	$4.10 - additional Student Manuals are $.40

HO76-409 ETHICAL AND LEGAL CONSIDERATIONS

Description:	Explains the ethical and legal responsibilities of health care workers. Discusses the importance of professional organizations. Introduces the concept of Patient Bill of Rights.
Materials Included:	Student Manual, Instructor Packet, Cassette Tape.
Cost:	$4.10 - additional Student Manuals are $.35

INDIVIDUALIZED INSTRUCTIONAL MODULES ARE ALSO AVAILABLE FOR BODY STRUCTURE AND FUNCTION. CATALOG AVAILABLE UPON REQUEST.

400 INTERPERSONAL PSYCHOLOGY

HO76-401 YOUR TOTAL IMAGE

Description: Explains the importance of good grooming, verbal communication, and kinesics as well as describing principles of good physical, emotional, and mental health.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (114 slides/2 cassette tapes).

Cost: $32.45 - additional Student Manuals are $.50

HO76-402 INTRODUCTION TO TRANSACTIONAL ANALYSIS - PART I

Description: Explains the theory of transactional analysis including the three ego states, the Parent, Adult, and Child. It also explains the three types of transactions. The importance of understanding behavior to increase self-awareness and positive communication is emphasized.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (70 slides/2 cassette tapes).

Cost: $22.80 - additional Student Manuals are $.50

HO76-403 INTRODUCTION TO TRANSACTIONAL ANALYSIS - PART II

Description: Explains the transactional theories of strokes and psychological stamp collections. It directs the student to identify how to utilize this knowledge in their daily life.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $4.00 - additional Student Manuals are $.45

HO76-404 FACTORS INFLUENCING BEHAVIOR - PART I

Description: Explains the effects of basic needs, heredity, and environment on human behavior. Incorporates Maslow's hierarchy of needs.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (45 slides/2 cassette tapes).

Cost: $16.60 - additional Student Manuals are $.25

CATALOG FOR NON-MISSOURI INSTITUTIONS

HEALTH OCCUPATIONS MODULES AVAILABLE
From the MEDIA CENTER

NOTE: Presentations are also available with Slides in Carousel Trays. Add $6.00 for 80 Slide Trays, and $7.50 for 140 Slide Trays.

100 COMMUNICATIONS

HO76-1000 INTRODUCTION TO INDIVIDUALIZED INSTRUCTION

Description: A discussion of individualized instruction explaining advantages to the instructor and students, how it differs from traditional instruction, and how materials are to be used.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (52 slides/2 cassette tapes).

Cost: $18.65 - additional Student Manuals are $.25

HO76-100-01 THEORY OF COMMUNICATIONS

Description: An introduction to communications describing the various theories and examining some barriers to effective communications.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (42 slides/2 cassette tapes).

Cost: $16.55 - additional Student Manuals are $.20

HO76-100-02 THINKING IN COMMUNICATION

Description: Explains the relationship of thinking to the processes of communication, detailing why logical thinking is important and how it can be achieved.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (53 slides/2 cassette tapes).

Cost: $18.95 - additional Student Manuals are $.25

HO76-100-03 PERCEPTION IN COMMUNICATIONS

Description: Explains the important relationship between perception and action in the communication process, as well as the use of our senses and why they are important.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $3.95 - additional Student Manuals are $.25

HO76-100-04 LISTENING IN COMMUNICATIONS

Description: Describes the importance of careful listening, and how to improve your listening ability. This module also includes examples of implied meanings in communication.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $3.90 - additional Student Manuals are $.25

HO76-100-05 SPEAKING IN COMMUNICATIONS

Description: Explains the importance of tone and modulation, the art of conversation, how to avoid rumors and gossip, and when to use medical and technical language.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (53 slides/2 cassette tapes).

Cost: $19.05 - additional Student Manuals are $.25

HO76-100-06 READING IN COMMUNICATIONS

Description: The importance of reading and ways to improve reading ability are analyzed. Includes a programmed learning section on medical terminology.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $5.10 - additional Student Manuals are $1.35

HO76-100-07 WRITING IN COMMUNICATIONS

Description: Explains the importance of writing and how to improve writing ability. It includes examples of correct memos, minutes, reports, and letters.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (83 slides/2 cassette tapes).

Cost: $25.35 - additional Student Manuals are $.25

HO76-100-08 COMMUNICATION IN YOUR JOB

Description: Explains vertical and horizontal communication and how it may be hindered or stimulated. Also included are institutional organization and the etiquette of communication.

Materials Included: Student Manual, Instructor Packet, Script and Slide/Tape Presentation (47 slides/2 cassettes).

Cost: $17.60 - additional Student Manuals are $.35

HO 79-254 WRITING A NURSING CARE PLAN AVAILABLE NOVEMBER 1, 1979

Description: A description of the nursing care plan including values, problems, goals, and nursing actions.

Materials Included: Student Manual and Instructor's Packet

Cost: $4.35 - additional Student Manuals are $1.25

HO 79-610 TRACHEOSTOMY CARE AVAILABLE SEPTEMBER 1, 1979

Description: An introduction to the basic principles followed in tracheostomy care and maintenance.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (62 slides/2 cassette tapes).

Cost: $17.85 - additional Student Manuals are $.15

LABORATORY PROCEDURES

HO76-300-01 ORIENTATION TO THE CLINICAL LABORATORY

Description: An introduction to the clinical laboratory that describes its basic functions, including: what it is, how it evolved, its various departments, qualifications for laboratory personnel.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (100 slides/2 cassette tapes).

Cost: $28.85 - additional Student Manuals are $.25

HO76-300-02 ROUTINE LABORATORY SCREENING TESTS

Description: Routine multiscreening test for hematology, chemistry and urinalysis are identified and defined. Normal values and their significance are given for each. Proper handling of laboratory specimens and completed laboratory reports are discussed.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (78 slides/2 cassette tapes).

Cost: $24.84 - additional Student Manuals are $.65

HO76-300-03 SPECIAL LABORATORY TESTS

Description: Special laboratory tests such as the glucose tolerance test, bacteriology, blood gasses and blood bank techniques are presented. Factors that affect test results adversely are listed and variations of clinical values for infants and children are presented.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $3.95 - additional Student Manuals are $.50

HO 79-240 PROCEDURES OF HEART, LUNG, AND BOWEL AUSCULTATION

AVAILABLE NOVEMBER 1, 1979

Description: This lesson is an introduction to the basic procedural steps of auscultating heart, lung, and bowel sounds.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (48 slides/2 cassette tapes)

Cost: $17.65 - additional Student Manuals are $.20

HO 79-250 ADMISSION PROCEDURE

Description: This unit describes principles of the entire admission procedure including importance of proper procedure, preliminary admission aspects, preparation of the room, and writing admission nursing notes.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (63 slides/2 cassette tapes)

Cost: $21.85 - additional Student Manuals are $.75

HO 79-251 TRANSFER AND DISMISSAL PROCEDURE

Description: An explanation of the transfer and dismissal procedure, including reasons for transfers and the importance of proper procedures.

Materials Included: Student Manual and Instructor's Packet

Cost: $4.10 - additional Student Manuals are $.45

HO 79-252 COLLECTING AND RECORDING A NURSING HISTORY

AVAILABLE NOVEMBER 1, 1979

Description: An introduction to the nursing history including the aspects of why, who, when, where, what, and how of collecting and recording a nursing history.

Materials Included: Student Manual and Instructor's Packet

Cost: $5.65 - additional Student Manuals are $1.15

HO 79-253 THE NURSING PROCESS

AVAILABLE NOVEMBER 1, 1979

Description: An introduction to the nursing process describing the steps of assessment, planning, implementation and evaluation.

Materials Included: Student Manual and Instructor's Packet

Cost: $3.90 - additional Student Manuals are $.50

CAREERS IN HEALTH OCCUPATIONS

AVAILABLE SEPTEMBER 1, 1979

Description: An introduction to the careers in health occupations with an emphasis on non-traditional employment opportunities. Slide/Tape Presentation

Cost: $18.75

200 FUNDAMENTALS OF NURSING

HO76-200-01 THE THREE PRINCIPLES GUIDING NURSING ACTION

Description: Shows the relationship of the three broad principles; maintaining man's individuality, maintaining the physiological functions, protection of man against external causes of illness and injury; to the concept of total patient care. Also explains the interrelatedness of all principles in planning, implementing, and evaluating the total concept of patient care.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: $3.80 - additional Student Manuals are $.30

HO76-200-02 EXTERNAL FACTORS INFLUENCING THE PATIENT'S ENVIRONMENT

Description: An overview of the total environmental factors, patient characteristics which influence safety, and the safety hazards in the environment. These are integrated into the concept of total patient care with appropriate adoptions.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (92 slides/2 cassette tapes).

Cost: $27.55 - additional Student Manuals are $.30

HO76-200-03 THE PATIENT'S UNIT

Description: Describes the patient's unit including the bed, overbed table bedside stand, light, chair and call light. The arrangement, proper usage and adoption of the furniture is presented in relation to the three principles guiding nursing action.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (62 slides/2 cassette tapes).

Cost: $21.15 - additional Student Manuals are $.20

HO76-200-04 OPERATION OF THE STANDARD ELECTRIC BED

Description: The basic principles of operation of a standard electric bed are demonstrated. These are adaptable to various types of electric beds with stress on patient safety and comfort.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (34 slides/2 cassette tapes).

Cost: $14.50 - additional Student Manuals are $.25

HO76-200-05 OPERATION OF AUXILLIARY EQUIPMENT

Description: A demonstration of the basic principles of operation of standard auxilliary equipment. Includes overbed table, light, call light, side rails, and IV poles. Adaptable to various types of electric beds with stress on patient safety and comfort.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (51 slides/2 cassette tapes).

Cost: **$18.45 - additional Student Manuals are $.35**

HO76-200-06 THE PATIENT'S CHART

Description: Describes the purposes for maintaining a patient's chart and the components of a chart. Legal and ethical implications are stressed in keeping with the concept of confidentiality.

Materials Included: Student Manual, Instructor Packet, Chart, Cassette Tape.

Cost: **$17.15 - additional Student Manuals are $.30**

HO76-200-07 HANDWASHING

Description: Medical asepsis is defined, examples are given, and times when handwashing is necessary are stressed. The key to maintaining the strong link in asepsis and the principles involved in handwashing are outlined.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: **$3.60 - additional Student Manuals are $.15**

HO76-200-08 HANDWASHING DEMONSTRATION

Description: A videotape demonstration on the proper technique of handwshing with emphasis on the basic principles of aspesis.

Materials Included: Student Manual, Instructor Packet, Videotape.

Cost: **$35.30 - additional Student Manuals are $.10**

HO76-200-09 ORAL HYGIENE

Description: The basic principles of good oral hygiene for the individual as well as for the hospitalized patient are presented. Includes information for self-care as well as stuperous and unconscious patients. Demonstration lessons follow in other packets.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: **$3.65 - additional Student Manuals are $.20**

HO 79-236 MEASURING TEMPERATURE, PULSE, RESPIRATION

AVAILABLE NOVEMBER 1, 1979

Description: A demonstration of the proper method of measuring temperature, pulse and respiration. Discusses measuring temperature by 3 routes: oral, rectal, and axillary. Also how to measure a radial pulse and measuring respiration.

Materials Included: Student Manual, Instructor's Packet, Videotape, 1 cassette tape

Cost: $35.45 - additional Student Manuals are $.20

HO 79- 237 INTRODUCTION TO BLOOD PRESSURE

AVAILABLE NOVEMBER 1, 1979

Description: This lesson will focus on factors influencing blood pressure and interpretation of blood pressure measurements.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (51 slides/2 cassette tapes)

Cost: $18.35 - additional Student Manuals are $.35

HO 79-238 MEASURING BLOOD PRESSURE (Demonstration)

AVAILABLE NOVEMBER 1, 1979

Description: This lesson will give you step-by-step directions in accurately measuring a person's blood pressure.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (19 slides/2 cassette tapes)

Cost: $11.15 - additional Student Manuals are $.10

HO 79-239 INTRODUCTION TO AUSCULTATION OF HEART, LUNG, AND BOWEL SOUNDS

AVAILABLE SEPTEMBER 1, 1979

Description: A demonstration of auscultating heart, lung, and bowel sounds, including a discussion of the stethoscope and principles of auscultation and suggestions for recording observations are explained in this module.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (107 slides/2 cassette tapes)

Cost: $32.35 - additional Student Manuals are $1.35

HO78-216 BODY MECHANICS FOR THE PATIENT

Description:	Introduces body mechanics for the patient including supportive and protective aids, varied positions for the patient, exercises for the patient, and the mechanics of ambulation.
Materials Included:	Student Manual, Instructor's Packet, and Slide/Tape Presentation (109 slides/2 cassette tapes).
Cost:	**$31.35 - additional Student Manuals are $.45**

HO78-217 BODY MECHANICS FOR THE PATIENT (DEMONSTRATION)

Description:	Gives the steps of procedure for the student to practice applying supportive aids, placing patients in varied positions, and exercises for the patient and mechanics of ambulation.
Materials Included:	Student Manual, Instructor's Packet, Cassette Tape, and Student Procedure Checksheet.
Cost:	**$4.55 - additional Student Manuals are $.30**

Note: It is recommended that modules 216 and 217 be taught as a unit.

HO78-218 SKIN ASSESSMENT AND CARE

Description:	Describes the structure and function of the skin and the physical assessment, nursing intervention, and the prevention and care of a decubitus ulcer.
Materials Included:	Student Manual, Instructor's Packet, and Cassette Tape.
Cost:	**$4.30 - additional Student Manuals are $.35**

HO 79 - 220 SHAVING THE MALE PATIENT

AVAILABLE NOVEMBER 1, 1979

Description:	A demonstration of the procedures to follow in shaving the male patient with a safety razor. Includes precautions to be observed prior to, during, and after shaving the patient.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (53 slides/2 cassette tapes)
Cost:	**$18.60 - additional Student Manuals are $.15**

HO 79-221 DAILY HAIR CARE OF THE PATIENT

AVAILABLE NOVEMBER 1, 1979

Description:	A demonstration of the procedures to follow in daily hair care of the patient. Includes presentations for health care personnel to observe this important aspect of daily grooming.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (52 slides/2 cassette tapes)
Cost:	**$18.50 - additional Student Manuals are $.25**

HO 79-222 HAIR CARE - SHAMPOO FOR THE PATIENT

AVAILABLE NOVEMBER 1, 1979

Description:	Discusses principles of hair shampooing the bed patient. Procedural steps are provided for administering a shampoo to a bed patient incorporating the principles of a patient and nurse comfort and safety.
Materials Included:	Student Manual, Instructor's Packet, Slide/Tape Presentation (51 slides/2 cassette tapes)
Cost:	**$18.25 - additional Student Manuals are $.15**

HO78-230 PRINCIPLES OF BED MAKING

Description:	Describes articles of linen and the principles of making an unoccupied, post-operative, orthopedic, and unoccupied bed. Principles of maintaining the safety and comfort of the patient and the nurse as well as principles of utilizing the nurses's time and energy economically are stressed.
Materials Included:	Student Manual, Instructor's Packet, and Slide/Tape Presentation (114 slides/2 cassette tapes).
Cost:	**$27.50 - additional Student Manuals are $.65**

HO78-231 BED MAKING PROCEDURES

Description:	A videotape demonstration of the basic principles and procedures for making the unoccupied bed (231 A), the post-operative bed (231 B), and the orthopedic bed (231 C). Gives the steps of procedure for the student to practice making each of these beds.
Materials Included:	3/4 Inch Color Videotape Cassette, 3 Audio Cassettes and a Student Manual and Instructor's Packet for each demonstration.
Cost:	**$36.40 - additional Student Manuals are $.45**

HO78-232 BED MAKING PROCEDURES

Description: A videotape demonstration of the basic principles and procedures of making the occupied bed. Gives the steps of procedure for the student to practice making this bed.

Materials Included: 3/4 Inch Videotape Cassette, Audio Cassette, Student Manual, and Instructor's Packet.

Cost: **$35.45 - additional Student Manuals are $.15**

HO78-233 SAFETY DEVICES

Description: Explains the purposes and types of safety devices and discusses the principles of legality and the use and application of safety devices. Explains pertinent nursing observations and nursing measures needed for the patient with a safety device.

Materials Included: Student Manual, Instructor's Packet, and Cassette Tape.

Cost: **$3.75 - additional Student Manuals are $.30**

HO78-234 APPLYING COMMON SAFETY DEVICES

Description: Gives the steps of procedure for the student to practice applying a limb holder and a safety vest for maximum or minimum security on a patient in a bed or wheelchair.

Materials Included: Student Manual, Instructor's Packet, and Slide/Tape Presentation (49 slides/2 cassette tapes).

Cost: **$17.80 - additional Student Manuals are $.15**

HO 79-235 INTRODUCTION TO TPR - (Information)

AVAILABLE NOVEMBER 1, 1979

Description: A demonstration of the procedures of a health worker's ability to accurately assess and interpret measurements of temperature, pulse and respiration.

Materials Included: Student Manual, Instructor's Packet, Slide/Tape Presentation (85 slides/2 cassette tapes).

Cost: $26.95 - additional Student Manuals are $.55

HO76-200-10 ASSISTING THE PATIENT WITH ORAL HYGIENE

Description: A step by step demonstration is presented on how to assist the patient with oral hygiene utilizing the principles presented in 200-09.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (21 slides/2 cassette tapes).

Cost: **$11.55 - additional Student Manuals are $.20**

HO78-213 BODY MECHANICS FOR THE NURSE-PART I

Description: Introduces the general principles and basic concepts of body mechanics, body movement, and body alignment. General guidelines for stooping, lifting and carrying, reaching, pushing and pulling, and the pivot turn are presented.

Materials Included: Student Manual, Instructor's Packet, Cassette Tape.

Cost: **$3.95 - additional Student Manuals are $.25**

HO78-214 BODY MECHANICS FOR THE NURSE-PART II

Description: Relates those principles described in 213 to applying proper body mechanics in the transfer of a patient from one place to another and the safety and comfort factors involved. Describes how to assist a patient to dangle, into a wheelchair or chair, and from the bed to a stretcher.

Materials Included: Student Manual, Instructor's Packet, and Slide/Tape Presentation (107 slides/2 cassette tapes).

Cost: **$30.65 - additional Student Manuals are $.25**

HO78-215 BODY MECHANICS FOR THE NURSE (DEMONSTRATION)

Description: Gives the steps of procedure for the student to practice stooping, reaching, assisting a patient to dangle, to a wheelchair or chair, transferring a patient from a bed to a stretcher, and from a bed to a wheelchair using a mechanical lifter.

Materials Included: Student Manual, Instructor's Packet, Cassette Tape, and Student Procedure Checksheet.

Cost: **$3.95 - additional Student Manuals are $.20**

Note: It is recommended that modules 213, 214, and 215 be taught as a unit.